JOHNS HOPKINS HOSPITAL
JAN 19 1905
LIBRARY.

THE BOSTON MEDICAL AND SURGICAL JOURNAL

GEORGE B. SHATTUCK, M.D., EDITOR
E. W. TAYLOR, M.D., ASSISTANT EDITOR

JOHNS HOPKINS HOSPITAL
FEB 16 1907
LIBRARY.

VOLUME CLI

JULY—DECEMBER, 1904

BOSTON
THE OLD CORNER BOOK STORE (INCORPORATED)
27 AND 29 BROMFIELD STREET
1904

R11
.B74

7149 H.

FEB 23 1905

The Fort Hill Press
SAMUEL USHER
176 TO 184 HIGH STREET
BOSTON, MASS.

JOHNS HOPKINS HOSPITAL
JAN 19 1905
LIBRARY

CONTRIBUTORS TO VOLUME CLI.

ABBOTT, S. W., M.D.
ADAMS, J. F. ALLEYNE, M.D.
ARLOING, M.D.
ARTHUR, WILLIAM H., M.D.
BADGER, GEORGE S. C., M.D.
BALCH, F. G., M.D.
BARTOL, JOHN W., M.D.
BEEBE, THEODORE C., JR., M.D.
BLAKE, J. B., M.D.
BONNEY, S. G., M.D.
BOWDITCH, VINCENT Y., M.D.
BOWEN, JOHN T., M.D.
BRACKETT, E. G., M.D.
BRADFORD, E. H., M.D.
BROWN, D. J., M.D.
BULLARD, W. N., M.D.
BURRAGE, W. L., M.D.
BURRELL, H. L., M.D.
CABOT, HUGH, M.D.
CABOT, RICHARD C., M.D.
CANEDY, F. J., M.D.
CANNON, W. B., M.D.
CHEEVER, DAVID W., M.D.
CHUTE, ARTHUR L., M.D.
CLARK, F. C., M.D.
CODMAN, E. A., M.D.
COOLIDGE, A., JR., M.D.
COTTON, F. J., M.D.
COUES, W. P., M.D.
COUNCILMAN, W. T., M.D.
COURMONT, M.D.
CROTHERS, T. D., M.D.
CUMSTON, CHARLES GREENE, M.D.
CUSHING, H. W., M.D.
CUTLER, E. G., M.D.
DANE, JOHN, M.D.
DARNALL, WILLIAM EDGAR, M.D.
DE BLOIS, THOMAS AMORY, M.D.
DENNY, F. P., M.D.
DONLEY, JOHN E., M.D.
DOWNING, BERTHA C., M.D.
DRAPER, A. D., M.D.
DWIGHT, THOMAS, M.D.
EDES, ROBERT T., M.D.
EDSON, CARROLL E., M.D.
ELLIOT, J. W., M.D.
EMERSON, FRANCIS P., M.D.
ERNST, HAROLD C., M.D.
EVANS, THOMAS HORACE, M.D.
FARLOW, JOHN W., M.D.
FITCH, R. R., M.D.
FOLSOM, C. F., M.D.
FRIEDMAN, C. V., M.D.
GANNETT, W. W., M.D.
GIFFORD, N. H., M.D.
GOLDTHWAIT, JOEL E., M.D.
GOODALE, J. L., M.D.
GOULD, ALFRED H., M.D.
GUITERAS, RAMON, M.D.
HALL, WILLIAM D., M.D.
HARRINGTON, THOMAS F., M.D.
HEWES, HENRY F., M.D.
HIGGINS, FRANK A., M.D.
HILL, HIBBERT WINSLOW, M.D.
HUBBARD, JOSHUA C., M.D.
JACKSON, HENRY, M.D.
JACOBS, HENRY BARTON, M.D.
JOHNSON, FRANK M., M.D.
JONES, DANIEL FISKE, M.D.
JOSLIN, E. P., M.D.
KNAPP, PHILIP COOMBS, M.D.
KNIGHT, FREDERICK I., M.D.
LELAND, G. A., M.D.
LORD, FREDERICK T., M.D.
LOVETT, R. W., M.D.
LOW, H. C., M.D.
LUND, F. B., M.D.
MALLORY, F. B., M.D.
MANLEY, THOMAS H., M.D.
MILLER, LESTER C., M.D.
MILLET, CHARLES S., M.D.
MINER, W. W., M.D.
MORRILL, F. GORDON, M.D.
MORSE, JOHN LOVETT, M.D.

MUMFORD, JAMES G., M.D.
MUNRO, JOHN C., M.D.
MURPHY, FRED T., M.D.
MUSGRAVE, PERCY, M.D.
OGDEN, J. BERGEN, M.D.
O'NEIL, RICHARD FROTHINGHAM, M.D.
PAGE, CHARLES W., M.D.
PAINTER, CHARLES F., M.D.
PALMER, LEWIS M., M.D.
PALMER, SARAH ELLEN, M.D.
PEASE, E. A., M.D.
PERKINS, JAY, M.D.
PERRY, H. B., M.D.
PORTER, C. A., M.D.
PORTER, C. B., M.D.
POST, ABNER, M.D.
POWERS, GEORGE H., JR., M.D.
PRATT, JOSEPH H., M.D.
PUTNAM, JAMES J., M.D.
RICHARDSON, MAURICE H., M.D.
REYNOLDS, EDWARD, M.D.
ROBEY, W. H., JR., M.D.
ROTCH, THOMAS MORGAN, M.D.
SABINE, WALLACE C., A.M.
SAJOUS, C. E. DE M., M.D.
SCUDDER, CHARLES L., M.D.
SEARS, GEORGE G., M.D.
SHATTUCK, FREDERICK C., M.D.
SHATTUCK, GEORGE B., M.D.
SIMMONS, CHANNING C., M.D.
SIMS, F. ROBERTSON, M.D.
SLACK, FRANCIS HENRY, M.D.
SMITH, D. D., M.D.
SMITH, HOWARD H., M.D.
SMITH, THEOBALD, M.D.
STANDISH, MYLES, M.D.
STEDMAN, HENRY R., M.D.
STIMSON, F. J., ESQ.
STONE, J. S., M.D.
TALLANT, ALICE WELD, M.D.
TAYLOR, E. W., M.D.
TAYLOR, J. MADISON, M.D.
THORNDIKE, AUGUSTUS, M.D.
TOWLE, HARVEY P., M.D.
TOWNSEND, C. W., M.D.
VICKERY, H. F., M.D.
WARREN, J. COLLINS, M.D.
WATSON, FRANCIS S., M.D.
WEBBER, S. G., M.D.
WHITE, FRANKLIN W., M.D.
WHITE, J. C., M.D.
WHITNEY, CHARLES M., M.D.
WITHINGTON, CHARLES F., M.D.

FEB 16 1907
LIBRARY

INDEX TO VOLUME CLI.

AUTHORS.

Adams, J. F. Alleyne. A case of malignant endocarditis, 396.
Arloing and Courmont. Serum diagnosis of tuberculosis. The historical aspect of the subject. The technique for investigating the serum reaction of tuberculosis. Difficulties and sources of error. Results and conclusions, 617.
Arthur, William H. Surgery on old men, 234.

Badger, George S. C., and Cabot, Hugh. The interrelation of medicine and surgery in the treatment of gastric ulcer, 259.
Balch, F. G. Theories as to the cause of the vicious circle, 325.
Bartol, John W. Progress in thoracic disease, 296.
Beebe, Theodore C., Jr. A comparison of anesthetics. Results from chloretone, 376.
Blake, J. B. A ureteral calculus of unusual size, 463; strangulated femoral hernia, relieved by abdominal operation. Raynaud's disease; gangrene of forearm, 265.
Bonney, S. G. Remarks upon the general principles of management of pulmonary tuberculosis, 286.
Bowditch, Vincent Y. Pulmonary tuberculosis and sanatorium treatment, 588.
Bowen, John T. Report on dermatology, 216.
Brackett, E. G., Bradford, E. H., Lovett, R. W., Thorndike, Augustus, and Dane, John. Congenital dislocation of the hip. Report of orthopedic staff of the Boston Children's Hospital based upon observations on 144 cases, 85.
Brackett, E. G., Stone, J. S., and Low, H. C. Aciduria (acetonuria) associated with death after anesthesia, 2.
Bradford, E. H. Arthritis deformans, 534; metatarso-tarsal valgus or humped foot and its relation to boots, 560; treatment of lateral curvature, 479.
Bradford, E. H., Lovett, R. W., Brackett, E. G., Thorndike, Augustus, and Dane, John. Congenital dislocation of the hip. Report of orthopedic staff of the Boston Children's Hospital based upon observations on 144 cases, 85.
Brown, D. J. Malpositions of the uterus; their causes and treatment, 153.
Bullard, W. N., and Sims, F. Robertson. A case of diffuse encephalitis showing the pneumococcus, 647.
Burrage, W. L. Recent progress in gynecology, 381, 409.
Burrell, H. L., Cushing, H. W., and Stone, J. S. Report of cases from the surgical service of the Children's Hospital, Boston, Mass. Second series, 685, 717.

Cabot, Hugh. Anterior v. posterior gastro-enterostomy, 325.
Cabot, Hugh, and Badger, George S. C. The interrelation of medicine and surgery in the treatment of gastric ulcer, 259.
Cabot, Richard C. Conclusions from a series of measurements of blood pressure in fevers, before, during and after the administration of strychnia, 346; the ideal of accuracy in clinical work: its importance, its limitations, 557.
Canedy, F. J. A case of suspected homicide proved to be suicide by strychnia, 715.
Cheever, David W. The ideal doctor, 510.
Cheever, David W., Porter, C. B., and Painter, Charles F. Congenital dislocation of the hip. Report of the committee of the Boston Society for Medical Improvement, 92.
Chute, Arthur L. The pain of osteo-arthritis of the spine: its bearing on the diagnosis of urinary disease, 563.
Clark, F. C. Concerning acetanilid, 539.
Codman, E. A. Remarks on the résumé of Dr. F. B. Harrington's service for the year 1902, 74.
Coolidge, A., Jr. The extraction of foreign bodies from the bronchi, 395.
Cotton, F. J. Clinical topography of lymph nodes, 229; laryngotomy and removal of one cord for benign tumor of larynx. Operation for "dropped knuckle," 266.
Coues, W. P., and Robey, W. H., Jr. Post-operative erysipelatous dermatitis in an infant of one month; recovery, 719.
Councilman, W. T. The modern conceptions and methods of medical science, 425.
Courmont and Arloing. Serum diagnosis of tuberculosis. The historical aspect of the subject. The technique for investigating the serum reaction of tuberculosis. Difficulties and sources of error. Results and conclusions, 617.
Crothers, T. D. American Medical Society for the Study of Alcohol and Other Narcotics, 227.
Cumston, Charles Greene. Remarks on the jurisprudence of civil malpractice, based principally on the decisions rendered by the French courts, 623, 655.
Cushing, H. W. Acute appendicitis, gangrene, perforation, general peritonitis, recovery. General suppurative peritonitis, toxemia, adrenalin, infusion, recovery. Intestinal obstruction from stricture due to adenocarcinoma, resection of colon, recovery. Phlebitis of the vena cava following typhoid. Supposed tuberculous tumor of the pons cerebri. Senile gangrene of the leg, amputation of thigh, recovery. Raynaud's disease, 266.
Cushing, H. W., Burrell, H. L., and Stone, J. S. Report of cases from the surgical service of the Children's Hospital, Boston, Mass. Second series, 685, 717.
Cutler, E. G. A case of chronic leukemia. A case of subacute articular rheumatism. A case of methemoglobinemia. A case of emphysema. Chronic plethora. An unusual case of scleroderma, 72; gastric ulcer in children, 367, 402.

Dane, John, Bradford, E. H., Lovett, R. W., Brackett, E. G., and Thorndike, Augustus. Congenital dislocation of the hip. Report of orthopedic staff of the Boston Children's Hospital based upon observations on 144 cases, 85.
Darnall, William Edgar. The gynecological aspect of mental overstrain at puberty, and its influence on development, 291.
De Blois, Thomas Amory. Sub-glottic tubercular lesions of the larynx, 321.
Denny, F. P. Isolation methods and precautions in contagious disease, 711.
Donley, John E. A case of uniradicular brachial palsy affecting the fifth cervical nerve, 133; three cases of the association neurosis with remarks on its genesis, 484.
Downing, Bertha C. Mental defectives, 236.
Draper, A. D. A device for greater accuracy of dilution of Thoma-Zeiss pipettes, 684.
Dwight, Thomas. A card catalogue of anatomy, 451.

Edes, Robert T. Mind cures from the standpoint of the general practitioner, 173.
Edson, Carroll E. A meteorological study of the winter of 1903–04, 92.
Elliot, J. W. A case of intussusception. Interstitial colitis, simulating cancer of the rectum, 72.
Emerson, Francis P. Earache, or cases of early involvement of the middle ear, usually neglected, 352.
Ernst, Harold C. Animal experimentation, 89.
Evans, Thomas Horace. On "variant" infections: with report of cases, 400.

Farlow, John W. Two cases of chronic pemphigus of the mouth, 671.
Fitch, R. B. Four cases of laparotomy during typhoid fever: with recovery, 631.
Friedman, C. V. Coma following labor, 464.

Gannett, W. W. Ulceration of primary bronchus; perforation into pulmonary artery, 72.
Gifford, N. H. Experimental decapsulation of the kidneys, 37.
Goldthwait, Joel E. The differential diagnosis and treatment of the so-called rheumatoid diseases, 529.
Goodale, J. L. The ultimate results of cauterization of the lower turbinate, with therapeutic suggestions based upon histological findings, 701.
Gould, Alfred H. An improved method of end to lateral intestinal anastomosis. A new mattress stitch, 707.
Gould, A. H., and Murphy, F. T. Coagulation-time of the blood. A comparison between the Wright and the Brodie-Russell instruments, based upon six hundred observations, 45.
Guiteras, Ramon. Fourth Pan-American Medical Congress, 503.

Hall, William D., and Standish, Myles. Recent progress in ophthalmology, 490.
Hare, Henry F. Standard records of the leucocytes in normal blood for reference in clinical work, 705.
Higgins, Frank A. Report on obstetrics, 243, 270.
Hill, Hibbert Winslow. Innocent cases reported as diphtheria, 654.
Hill, Hibbert Winslow, and Slack, Francis Henry. Bacterial counts of Boston's milk supply, 708.
Hubbard, Joshua C. Case of rupture of the spleen, 443.

Jackson, Henry. Chronic joint disease, 535; disease of the myocardium, 339.
Jacobs, Henry Barton. Tuberculosis, its nature and prevention, 505.
Johnson, Frank M. The union of the teachings in cystoscopy and microscopy, 132.
Jones, Daniel Fiske. Abscess of the liver following abdominal infections, with a report of four cases, 341; a case of intraperitoneal rupture of the bladder, 515; remarks on exploratory laparotomy in cachectic subjects, 324.
Jones, Daniel Fiske, and Simmons, Channing C. Report of a case of primary carcinoma of the appendix, 566.
Joslin, Elliott P. Progress in gastro-intestinal diseases, 161, 191.
Joslin, Elliott P., Lund, F. B., and Murphy, F. T. Operations upon benign diseases of the stomach at the Boston City Hospital and Massachusetts General Hospital, 1898–1903 inclusive, 113.

Knapp, Philip Coombs. Recent progress in neurology, 99.
Knight, Frederick I. What shall we do with patients having pulmonary tuberculosis? 257.

Leland, G. A. Leucoplakia of tongue. Cicatricial stricture of pharyngeal orifice, relieved by plastic operation, 295.
Lord, Frederick T. Flies and tuberculosis, 651.
Lovett, R. W., Bradford E. H., Brackett, E. G., Thorndike, Augustus, and Dane, John. Congenital dislocation of the hip. Report of orthopedic staff of the Boston Children's Hospital based upon observations on 144 cases, 85.
Low, H. C., Brackett, E. G., and Stone, J. S. Aciduria (acetonuria) associated with death after anesthesia, 2.
Lund, F. B. Fractures of the radius in starting automobiles, 481.
Lund, F. B., Joslin, E. P., and Murphy, F. T. Operations upon benign diseases of the stomach at the Boston City Hospital and Massachusetts General Hospital, 1898–1903 inclusive, 113.

Manley, Thomas H. The mamma, its physiological purposes, 461.

Miller, Lester C. The decrease in the death-rate of consumption, 678.
Millet, Charles S. The practical application of hydrotherapeutic measures, 205.
Miner, W. W. Pulmonary congestion as a cause of sudden death, 682.
Morrill, F. Gordon. The Assouan cure, 440.
Morse, John Lovett. Rheumatoid disease in children, 537; report on pediatrics, 687.
Morse, John Lovett, and Rotch, Thomas Morgan. Report on pediatrics, 658.
Mumford, James G. Four cases of Finney's operation on stomach, 73.
Munro, John C. Operations on the stomach, with report of cases, 145, 183, 210, 239.
Murphy, Fred T. A study of amputations of the lower extremity, 33.
Murphy, Fred T., and Gould, A. H. Coagulation-time of the blood. A comparison between the Wright and the Brodie-Russell instruments, based upon six hundred observations, 45.
Murphy, Fred T., Lund, F. B., and Joslin, E. P. Operations upon benign diseases of the stomach at the Boston City Hospital and Massachusetts General Hospital, 1898–1903 inclusive, 113.
Musgrave, Percy. Examination of pleural fluids with reference to their etiology and diagnostic value, 317, 347, 377, 406.

Ogden, J. Borgen. Functional albuminuria, with a report of a case, 40: report of physiological chemistry, 542.
O'Neil, Richard Frothingham. Hematuria due to Bilharzia hematobia, with the report of a case, 453.

Page, Charles W. Mechanical restraint and seclusion of insane persons, 590.
Painter, Charles F. Types of rheumatoid disease, 538.
Painter, Charles F., Cheever, David W., and Porter, C. B. Congenital dislocation of the hip. Report of the committee of the Boston Society for Medical Improvement, 99.
Palmer, Lewis M. The tendencies of the practice of medicine as a profession and an art, 309.
Palmer, Sarah Ellen. Adeno-carcinoma of intestines involving the bladder, 47: letter from Munich, 725.
Pease, E. A. Gastro-enterostomy. After-treatment, 326.
Perkins, Jay. The diagnosis of incipient pulmonary tuberculosis, 627.
Perry, H. B. Implantations of silver filigree for cure of large ventral hernia. Report of two cases, 97.
Porter, C. A. Technique of gastro-enterostomy. Special preparation of patient for operations on the stomach, 323.
Porter, C. B., Cheever, David W., and Painter, Charles F. Congenital dislocation of the hip. Report of the committee of the Boston Society for Medical Improvement, 99.
Post, Abner. Tabes dorsalis, with surgical complications, 266.
Powers, George H., Jr. Plastic operations for resection of the nasal septum and excision of septal spurs, 513.
Pratt, Joseph H. The present status of hydrotherapy and other forms of physical therapeutics, 201.
Putnam, James J. A consideration of mental therapeutics as employed by special students of the subject, 179: the value of the physiological principle in the study of neurology, 641.

Reynolds, Edward. President's address before the American Gynecological Society, 1.
Richardson, Maurice H. On certain unavoidable calamities following surgical operations, 583.
Robey, W. H., Jr., and Coues, W. P. Post-operative erysipelatous dermatitis in an infant of one month: recovery, 719.
Rotch, Thomas Morgan, and Morse, John Lovett. Report on pediatrics, 658; report on pediatrics, 687.

Sabine, Wallace C. The physical relationship of Finsen light, Röntgen rays and radio-activity, 159.
Sajous, C. E. de M. Internal secretions, 393.
Scudder, Charles L. A gastro-enterostomy clamp, 442; spindle-cell sarcoma of foot. Amputation. Recovery. Lung metastases. Death. Autopsy, 264: the technique of resection of cecum, 511.
Scudder, Charles L. Chronic gastric ulcers. Hour-glass deformity of the stomach. Report of a case successfully operated, 676.
Sears, George G. A case of Addison's disease. A case of cancer confined to the papilla of the common bile duct, 295.
Simmons, Channing C., and Jones, Daniel Fiske. Report of a case of primary carcinoma of the appendix, 566.
Sims, F. Robertson, and Bullard, W. N. A case of diffuse encephalitis, showing the pneumococcus, 647.
Slack, Francis Henry, and Hill, Hibbert Winslow. Bacterial counts of Boston's milk supply, 708.
Smith, D. D. Pericemental abscess, 372.
Smith, Howard H., and White, Franklin W. Heart complications in diphtheria. A clinical study of 946 cases, 433.
Smith, Theobald. Leprosy, 675.
Standish, Myles, and Hall, William D. Recent progress in ophthalmology, 490.
Stedman, Henry R. A case of moral insanity with repeated homicides and incendiarism and late development of delusions, 57; report on mental diseases, 567, 601.
Stimson, F. J. The Assouan cure. From a layman's point of view, 433.
Stone, J. S. Subperiosteal fractures of the humerus in children, 157.
Stone, J. S., Brackett, E. G., and Low, H. C. Aciduria (acetonuria) associated with death after anesthesia, 2.
Stone, J. S., Burrell, H. L., and Cushing, H. W. Report of cases from the surgical service of the Children's Hospital, Boston, Mass. Second series, 685, 717.

Tallant, Alice Weld. Some observations on the occurrence of Broadbent's sign, 457.
Taylor, E. W. Pott's disease. Treatment at a late stage. Remarks on the pathological anatomy, 595: sacral spina bifida, with reference to the skin representation of sacral nerve roots, 208.
Taylor, J. Madison. Dr. Sajous on "internal secretions," 365.
Thorndike, Augustus, Bradford, E. H., Lovett, R. W., Brackett, E. G., and Dane, John. Congenital dislocation of the hip. Report of orthopedic staff of the Boston Children's Hospital based upon observations on 144 cases, 85.
Towle, Harvey F. Clinical report from the ward for skin diseases at the Massachusetts General Hospital, 629.
Townsend, C. W. Vulvo-vaginitis in children. A method for obtaining sputa for bacteriological examination in infants and young children. Mouth temperature and rectal temperature, 75.

Vickery, H. F. Chronic joint disease at the Massachusetts General Hospital, 536.

Watson, Francis S. Clinical lecture on urethral stricture delivered at the Boston City Hospital to fourth year Harvard medical students, 611: obstructive renal retention and anuria, and its treatment, 281: penetrating bullet wounds of right lung, liver and stomach, superficial wound of scalp. Laparotomy. Purse-string suture of stomach wound, and closure of wound of liver by interrupted sutures. Recovery, 462.
Webber, S. G. Cases illustrative of syphilis of the nervous system, 486.
White, Franklin W., and Smith, Howard H. Heart complications in diphtheria. A clinical study of 946 cases, 433.
Whitney, Charles M. The etiology and modern methods of treatment of chronic urethritis, 66.
Withington, Charles F. A case of malignant endocarditis with recovery, 99.

SUBJECTS.

Addresses. The ideal of accuracy in clinical work: its importance, its limitations, Cabot, Richard C., 537; the modern conceptions and methods of medical science, Councilman, W. T., 425: animal experimentation, Ernst, Harold C., 29: tuberculosis, its nature and prevention, Jacobs, Henry Barton, 505: the tendencies of the practice of medicine as a profession and an art, Palmer, Lewis M., 309: the value of the physiological principle in the study of neurology, Putnam, James Jackson, 641: president's address before the American gynecological society, Reynolds, Edward, 1.
Anesthetics. A comparison of anesthetics. Results from chloretone, Beebe, Theodore C., Jr., 376: aciduria (acetonuria) associated with death after anesthesia, Brackett, E. G., Stone, J. S., and Low, H. C., 2.

Bilharzia Hematobia. Hematuria due to Bilharzia hematobia, with the report of a case, O'Neil, Richard Frothingham, 453.
Blood. Conclusions from a series of measurements of blood pressure in fevers, before, during and after the administration of strychnia, Cabot, Richard C., 346: coagulation-time of the blood. A comparison between the Wright and Brodie-Russell instruments, based upon six hundred observations, Gould, A. H., and Murphy, F. T., 45: standard records of the leucocytes in normal blood for reference in clinical work, Hewes, Henry F., 705.
Blood Pressure. Conclusions from a series of measurements of blood pressure in fevers, before, during and after the administration of strychnia, Cabot, Richard C., 346.
Books Reviewed. Allen, Charles Warrenne, radiotherapy, phototherapy and high-frequency currents, 498; Bailey, Frederick R., a textbook of histology, 549: Bartley, Elias H., manual of physiological and clinical chemistry, 575: Bastian, H. Charlton, studies in heteromorphosis, 50: Beebe, S. P., and Buxton, B. H., outlines of physiological chemistry, 720: Bickham, Warren Stone, a textbook of operative surgery, covering the surgical anatomy and operative technique involved in the operations of general surgery, 603: Bocciardo, A. D., elettricità medica, 447: Böhm, A. A., and von Davidoff, M., a textbook of histology, including microscopic technic, 549: Boston, L. Napoleon, a textbook of clinical diagnosis. By laboratory methods for use of students, practitioners and laboratory workers, 605: Burrell, Herbert L., case teaching in surgery, 663: Busch, Frederick C., Kirkes' handbook of physiology, 575: Cabot, Richard C., a guide to the clinical examination of the blood for diagnostic purposes, 223: Casper, Leopold, and Richter, Paul Frederick, functional diagnosis of kidney disease with especial reference to renal surgery, 549: Cattell, Henry W., post-mortem pathology. A manual of post-mortem examinations and the interpretations to be drawn therefrom. A practical treatise for students and practitioners, 360: Cohen, Solomon Solis, a system of physiologic therapeutics. A practical exposition of the methods, other than drug-giving, useful for the prevention of disease and in the treatment of the sick, 388: Coolidge, Emelyn Lincoln, the mother's manual. A month by month guide to young mothers, 359: Cornet, G., American edition of Nothnagel's practice. Tuberculosis and acute general miliary tuberculosis, 472: Dana, Charles L., textbook of nervous diseases and psychiatry, 663: Davis, Edward P., obstetrics and gynecologic nursing, 274: Davison, Alvin, mammalian anatomy, with special reference to the cat, 22: Dudley, E. C., a treatise on the principles and practice of gynecology, 471: Dudley, Emilius C., and Healy, William, gynecology. Vol. VI of the practical medicine series of year books, 106: Dunham, Edward K., a textbook on normal histology for the use of students and practitioners of medicine, 549: Dwight, Edwin Welles, the medical epitome series. Toxicology, 550: Fenwick, E. Hurry, the value of ureteric meatoscopy in obscure diseases of the kidney, 521: Flick, Lawrence F., consumption a curable and preventable disease, 301: Gerrard, Percy Netterville, beriberi, its symptoms and symptomatic treatment, 663: Gerrard, Percy Netterville, beri-beri, its symptoms and symptomatic treatment: being extracts from "an essay on beri-beri," 663: Gowers, William R., lectures on diseases of the nervous system, 106: Halliburton, W. D., Kirkes' handbook of physiology, 575: Halliburton, W. D., the essentials of clinical physiology, 663: Hare, Hobart Amory, Hare's practical therapeutics: a textbook of practical therapeutics: with especial reference to the application of remedial measures to disease and their employment upon a rational

basis, 633; Head, Gustavus P., the practical medicine series of year books. Vol. II, general surgery, 359; Holland, J. W., the urine and clinical chemistry of the gastric contents, the common poisons and milk, 662; Illoway, H., the summer diarrheas of infants. Their etiology, pathology and treatment, 360; international medical annual: a year book of treatment and practitioners' index, 633; Jacobi, portfolio of dermochromes, 472; Janeway, Theodore C., the clinical study of blood pressure. A guide to the use of the sphygmomanometer in medical, surgical and obstetrical practice, 720; Kraepelin, Emil, lectures on clinical psychiatry, 574; Kyle, D. Braden, a textbook of the diseases of the nose and throat, 550; Landois, L., textbook of human physiology, 693; Leach, Albert E., food inspection and analysis, 470; Leffwich, Ralph Winnington, an index of symptoms as a clew to diagnosis, 498; Lenhartz, Hermann, manual of clinical microscopy and chemistry, prepared for the use of students and practitioners of medicine, 358; Luys, Georges, la séparation de l'urine des deux reins, 301; McFarland, Joseph, a textbook upon pathogenic bacteria, 416; Medical News visiting list for 1905, 605; Medical Record visiting list or physician's diary for 1905, 605; Mosso, A., fatigue. Translated by Margaret Drummond and W. B. Drummond, 290; Musser, John H., a practical treatise on medical diagnosis for students and physicians, 138; Muzio, Carlo, le malattie dei paesi caldi, loro profilassi ed igeine; con un' appendice, la vita nel brasile, 250; Nancrede, Charles B., Saunders' question-compends, No. 3. Essentials of anatomy; including the anatomy of the viscera, 605; Nothnagel, Hermann, American edition of Nothnagel's practice. Diseases of the intestines and peritoneum, 302; Oppenheim, H., diseases of the nervous system, 633; Olsen, J. C., a textbook of quantitative chemical analysis, 662; Ott, Isaac, a textbook of physiology, 575; Pattee, Alida Frances, practical dietetics with reference to diet in disease, 662; Prescott, Samuel Cate, and Winslow, Charles Edward Amory, the elements of water bacteriology with special reference to sanitary water analysis, 333; Rabaglioti, A., air, food and exercise: an essay on the predisposing causes of disease, 194; Robson, A. W. Mayo, disease of the gall-bladder and bile-ducts, including gall-stones, 358; Rolleston, H. D., clinical lectures and essays on abdominal and other subjects, 575; Sachse, Helen V., how to cook for the sick and convalescent. Arranged for the physician, trained nurse and home use, 662; Sajous, Charles E. de M., the internal secretions and the principles of medicine. Vol. I, 300; Simon, Charles E., a textbook of physiological chemistry, 447; Simon, Charles E., Simon's clinical diagnosis. A manual of diagnosis by microscopic and chemical methods. For students and practitioners, 359; Spratling, William P., epilepsy and its treatment, 470; Stengel, Alfred, a textbook of pathology, 387; Sternberg, George M., infection and immunity with special reference to the prevention of infectious diseases, 359; Swaffield, Walter H., the closure of laparotomy wounds as practised in Germany and Austria. Including detailed methods and views communicated by over fifty leading surgeons, 359; Taylor, Robert W., a practical treatise on genito-urinary and venereal diseases and syphilis, 471; Thomson, William Hanna, Graves disease, with and without exophthalmic goitre, 79; Tubby, A. H., and Jones, Robert, surgery of paralysis, 250; Turner, Dawson, a manual of practical medical electricity, 472; Tyson, James, a treatise on Bright's disease and diabetes, with especial reference to pathology and therapeutics, 605; Tyson, James, the practice of medicine. A textbook for practitioners and students with special reference to diagnosis and treatment, 300; von Behring, E., the suppression of tuberculosis, together with observations concerning phthisiogenesis in man and animals, and suggestions concerning the hygiene of cow-stables and the production of milk for infant feeding, with special reference to tuberculosis, 521; Von Bergmann, E., a system of practical surgery, 520; Von Noorden, Carl, clinical treatises on the pathology and therapy of disorders of metabolism and nutrition, 521; Wackenhagen, George, aseptic and antiseptic preparation and treatment of emergencies after abdominal surgical operations, 250; Wassermann, A., immune sera. Haemolysins, cytotoxins and precipitins, 388; Wilcox, Reynold Webb, a manual of fever nursing, 662; Wolff, Lawrence, essentials of chemistry, organic and inorganic, 550; Yeo, I. Burney, the therapeutics of mineral springs and climates, 416; Ziegler, Ernst, general pathology, or the science of the causes, nature and course of the processes of disease, 398.

Calculus. A ureteral calculus of unusual size, Blake, J. B., 463.

Carcinoma. Intestinal obstruction from stricture due to adeno-carcinoma, resection of colon, recovery, Cushing, H. W., 366: interstitial colitis, simulating cancer of the rectum, Elliot, J. W., 72; report of a case of primary carcinoma of the appendix, Jones, Daniel Fiske, and Simmons, Channing C., 566: adeno-carcinoma of intestines involving the bladder, Palmer, Sarah Ellen, 47: a case of cancer confined to the papilla of the common bile duct, Sears, George G., 295.

Clinical Meetings. Boston City Hospital, 265, 995: Massachusetts General Hospital, 72.

Correspondence. Harvard Medical School from a layman's standpoint, 111; medical exhibits at the World's Fair, 198; American medical society for the study of alcohol and other narcotics, by Crothers, T. D., 227: a disclaimer, by Alexander, Clara J., 337: Dr. Sajous on "Internal Secretions," by Taylor, J. Madison, 365; internal secretions, by Sajous, C. E. de M., 393; the Assouan cure. From a layman's point of view, by Stinson, F. J., 423; a card catalogue of anatomy, by Dwight, Thomas, 451; fourth Pan-American medical congress, by Guiteras, Ramon, 503: licenses to practice medicine in New Hampshire, 639; letter from Munich, by Palmer, Sarah Ellen, M.D., 725.

Deaths. Abbot, Samuel Leonard, 28: Abbott, Samuel Warren, 478; Allison, Henry E., 582; Babbitt, Henry Smith, 670; Bemis, Merrick, 394; Birtwell, Charles Ebenezer, 726; Brosnan, John T., 308; Buffet, Edward P., 308; Burr, Rollin H., 28; Carroll, William Edward, 640; Chabert, Romeo F., 228; Chambers, Jacob, 338; Conant, George Seymour, 366; Cushman, William F., 640; Draper, Joseph Rutter, 504; Fitzgerald, David J., 112; Flowers, William Caldwell, 478; Gilfillan, William, 726; Goodrich, Harriet Rawson, 256; Gould, Joshua Bayley, 726; Greenough, Francis Boott, 452; Healy, James Joseph, 556; Horwitz, Phineas J., 394; Johnson, Otis Henry, 84; Law, Charles K., 700; McLean, Henry C., 726; Milbank, Robert, 228; Morrill, S. C., 424; Newton, Adin Hubbard, 56; North, Nelson L., 610; Pitkin, Leonard F., 640; Price, Mordecai, 598; Purcell, John, 394; Seymour, William Wotkyns, 504; Simons, Elbridge Gerry, 280; Steele, John McClary, 256; Warden, Albert W., 200; Webber, Alonzo Carter, 256; Wenner, George V., 112; Woodward, Charles S., 28.

Dermatology. Report on dermatology, Bowen, John T., 216; clinical report from the ward for skin diseases at the Massachusetts General Hospital, Towle, Harvey P., 629.

Editorials. The question of immigration and public health, 23; the medical press, 24; Boston Floating Hospital, 25; Boston's chronic sick, 51; the value of leucocytosis in the pelvic affections of women, 52; interesting if true, 52; was Jane Toppan responsible? 80; the visit of Professor Hoffa, 80; plague in the Transvaal, 81; postgraduate teaching, 107; acute leukemia, 108; prevention of tuberculosis in Illinois, 109; the alleged physical degeneration of the English nation, 139; Boston's dependents and delinquents, 140; suicide in New York, 140; report of Government Laboratories in Manila, 141; work as a therapeutic measure, 168; health and medical legislation of 1904 in Massachusetts, 169; shellfish in polluted waters, 169; the British Medical Association, 194; an outbreak of typhoid fever, 195; annual encampment of the Grand Army of the Republic, 196; Dr. Osler and Oxford University, 223; the slaughter of animals for food, 224; Massachusetts General Hospital Training School for Nurses, 225; the St. Louis Convention and overstrain, 225; protracted and recrudescent infection in diphtheria and scarlet fever, 251; the sewing machine and gynecological affections, 252; a health education league, 252; supply and demand in medical education, 275; the influence of hysteropexy on future pregnancies, 275; a hospital observation law in Massachusetts, 303; Boston City Hospital report, 304; a medical recreation society, 304; meeting of Society of Chemical Industry, 305; Fourth of July tetanus, 333; the opening of the medical schools, 334; treatment of the wounded in the Russo-Japanese war, 335; physical deterioration, 360; new buildings for the Boston Insane Hospital, 361; the International Congress of Arts and Sciences, 389; Dr. Pierre Janet and hypnotism, 390; the exanthematic type of typhoid fever in children, 417; report of Maryland tuberculosis commission, 418; diminished medical classes, 419; smallpox infection from isolation hospital, 447; ether day at the Massachusetts General Hospital, 448; medical standards, 449; a defence of the appendix, 472; report of the Surgeon-General of the United States army, 473; suppression of quackery, 474; heredity and life assurance, 490; vital statistics of the twelfth census, 500; blood cultures, 522; fewer medical students, 522; medical lessons of the Eastern war, 523; the medical and dental profession, 551; a great sanitarian: James B. Russell, B.A., M.D., LL.D., 552; an extension of medical charity, 552; the importance of the study of the history of medicine, 576; uniformity of medical standards, 577; railway accidents, 578; the National Association for the Study and Prevention of Tuberculosis, 606; the relation of alcohol to arteriosclerosis, 606; the study of epilepsy, 607; report of the Surgeon-General of the navy, 634; electricity in modern life, 635; the discomforts of notoriety, 635; the micrococcus rheumaticus, 664; the protozoön of scarlet fever, 664; flies as disseminators of tuberculosis, 665; the Brigham hospital fund, 665; a plea for biology, 694; poisoning by wood alcohol, 695; the Nobel prize in medicine, 696; methylene blue in malarial fever, 697; secretary of the State Board of Health, 697; the year in retrospect, 721; the question of observation wards, 722; the financial problem of the New York hospitals, 723; twentieth anniversary of the Annals of Surgery, 723.

Endocarditis. A case of malignant endocarditis, Adams, J. F. Alleyne, 366; a case of malignant endocarditis with recovery, Withington, Charles F., 99.

Finney's Operation. Four cases of Finney's operation on stomach, Mumford, James G., 73.

Fractures. Fractures of the radius in starting automobiles, Lund, F. B., 481; subperiosteal fractures of the humerus in children, Stone, J. S., 157.

Gastric Ulcer. The interrelation of medicine and surgery in the treatment of gastric ulcer, Badger, George S. C., and Cabot, Hugh, 259; gastric ulcer in children, Cutler, E. G., 367, 402; chronic gastric ulcers, Hour-glass deformity of the stomach. Report of a case successfully operated, Scudder, Charles L., 696.

Gastro-enterostomy. Anterior *v.* posterior gastro-enterostomy, Cabot, Hugh, 395; gastro-enterostomy — after-treatment, Pease, E. A., 326; technique of gastro-enterostomy. Special preparation of patient for operations on the stomach, Porter, C. A., 393; gastro-enterostomy clamp, Scudder, Charles L., 442.

Gynecology. Malpositions of the uterus; their causes and treatment, Brown, D. J., 253; recent progress in gynecology, Burrage, W. L., 381, 409; the gynecological aspect of mental overstrain at puberty, and its influence on development, Darnall, William Edgar, 901; president's address before the American gynecological society, Reynolds, Edward, 1.

Hernia. Strangulated femoral hernia, relieved by abdominal operation, Blake, J. B., 265; implantations of silver filigree for cure of large ventral hernia. Report of two cases, Perry, H. B., 97.

Lymph Nodes. Clinical topography of lymph nodes, Cotton, F. J., 229.

Medical Notes, 25, 53, 82, 109, 142, 170, 196, 225, 253, 277, 305, 335, 363, 391, 419, 450, 475, 501, 523, 553, 579, 607, 636, 666, 697, 724.

Mental Diseases. The gynecological aspect of mental overstrain at puberty, and its influence on development, Darnall, William Edgar, 891; three cases of association neurosis with remarks on its genesis, Donley, John E., 484; mental defectives, Downing, Bertha C., 236; recent progress in neurology, Knapp, Philip Coombs, 99; mechanical restraint and seclusion of insane persons, Page, Charles W., 590; the value of the physiological principle in the study of neurology, Putnam, James Jackson, 641; a case of moral insanity with repeated homicides and incendiarism and late development of delusions, Stedman, Henry R., 57; report on mental diseases, Stedman, Henry R., 567, 601; cases illustrative of syphilis of the nervous system, Webber, S. G., 486.

Miscellany. 27, 55, 84, 110, 143, 178, 198, 226, 255, 279, 307, 337, 365, 392, 421, 451, 477, 504, 525, 555, 580, 609, 637, 667, 699, 724.

Obituaries. Theodore F. Breck, M.D., 27; Samuel Leonard Abbot, M.D., 54; Israel Thorndike Dana, M.D., 83; Edward W. Lambert, M.D., 110; Sir John Simon, K.C.B., F.R.S., D.C.L., LL.D., 143; Joseph Wiener, M.D., 197; Wendell C. Boyd, M.D., 197; Prof. Karl Weigert, 254; William Rice Pryor, M.D., 255; Henry Tuck, M.D., 279; Prof. Niels Finsen, 364; Juan Navarro, M.D., 392; Francis Boott Greenough, M.D., 476; Samuel W. Abbott, M.D., 502; William Wotkyns Seymour, M.D., 503; Helen W. Webster, M.D., 525; Henry Munson Lyman, M.D., 637.

Obstetrics. Coma following labor, Friedman, C. V., 464; report on obstetrics, Higgins, Frank A., 243, 270.

Raynaud's Disease. Raynaud's disease; gangrene of forearm, Blake, J. B., 965; Raynaud's disease, Cushing, H. W., 906.

Rheumatoid Diseases. Arthritis deformans, Bradford, E. H., 534; the pain of osteo-arthritis of the spine: its bearing on the diagnosis of urinary disease, Chute, Arthur L., 563; a case of subacute articular rheumatism, Cutler, E. G., 72; the differential diagnosis and treatment of the so-called rheumatoid diseases, Goldthwait, Joel E., 529; rheumatoid disease in children, Morse, John Lovett, 537; types of rheumatoid disease, Painter, Charles F., 538.

Societies. American climatological association, 327, 353; American dermatological association, 603, 632, 660; American gynecological society, 17, 48, 79, 103; American laryngological association, 246, 273, 298; American medical association. Section on practice of medicine, 20; American medical association. Surgical section, 384, 411, 443; American pediatric society, 494, 516, 544, 573; American surgical association, 164, 192, 219; American therapeutic society, 465; Boston society for medical improvement, 572; Boston society of psychiatry and neurology, 75; conference of state and provincial boards of health of North America, 387; Maine medical association, 248; medical association of the Greater City of New York, 689; national association for study and prevention of tuberculosis, 222; obstetrical society of Boston, 469; Rhode Island medical society, 166; Suffolk district medical society. Section for surgery, 135, 331.

Stomach. The interrelation of medicine and surgery in the treatment of gastric ulcer, Badger, George S. C., and Cabot, Hugh, 259; anterior *v.* posterior gastro-enterostomy, Cabot, Hugh, 325; progress in gastro-intestinal diseases, Joslin, E. P., 161, 191; operations upon benign diseases of the stomach at the Boston City Hospital and Massachusetts General Hospital, 1898–1903 inclusive, Joslin, Elliott P., Lund, F. B., and Murphy, F. T., 113; four cases of Finney's operation on stomach, Mumford, James G., 73; operations on the stomach, with report of cases, Munro, John C., 145, 183, 210, 239; gastro-enterostomy — after-treatment, Pease, E. A., 326; technique of gastro-enterostomy. Special preparation of patient for operations on the stomach, Porter, C. A., 323; a gastro-enterostomy clamp, 442; chronic gastric ulcers. Hour-glass deformity of the stomach. Report of a case successfully operated, Scudder, Charles L., 676; penetrating bullet wounds of right lung, liver and stomach, superficial wound of scalp. Laparotomy. Purse-string suture of stomach wound, and closure of wound of liver by interrupted sutures. Recovery, Watson, Francis S., 462.

Therapeutics. Concerning acetanilid, Clark, F. C., 539; mind cures from the standpoint of the general practitioner, Edes, Robert T., 173; the practical application of hydrotherapeutic measures, Millet, Charles S., 205; the Assouan cure, Morrill, F. Gordon, 440; the present status of hydrotherapy and other forms of physical therapeutics, Pratt, Joseph H., 201; a consideration of mental therapeutics as employed by special students of the subject, Putnam, James J., 179.

Tuberculosis. Serum diagnosis of tuberculosis. The historical aspect of the subject. The technique for investigating the serum reaction of tuberculosis. Difficulties and sources of error. Results and conclusions, Arloing and Courmont, 617; remarks upon the general principles of management of pulmonary tuberculosis, Bonney, S. G., 286; pulmonary tuberculosis and sanatorium treatment, Bowditch, Vincent Y., 588; supposed tuberculous tumor of pons cerebri, Cushing, H. W., 266; subglottic tubercular lesions of the larynx, De Blois, Thomas Amory, 321; tuberculosis, its nature and prevention, Jacobs, Henry Barton, 505; what shall we do with patients having pulmonary tuberculosis? Knight, Frederick I., 257; flies and tuberculosis, Lord, Frederick T., 651; the diagnosis of incipient pulmonary tuberculosis, Perkins, Jay, 627; report of cases from the surgical service of the Children's Hospital, Boston, Mass. Second series, Burrell, H. L., Cushing, H. W., and Stone, J. S., 685; the decrease in the death-rate of consumption, Miller, Lester C., 678.

Typhoid Fever. Phlebitis of the vena cava following typhoid, Cushing, H. W., 266; four cases of laparotomy during typhoid fever: with recovery, Fitch, R. R., 631.

Urethritis. Clinical lecture on urethral stricture delivered at the Boston City Hospital to fourth year Harvard medical students, Watson, Francis S., 611; the etiology and modern methods of treatment of chronic urethritis, Whitney, Charles M., 66.

Address.

PRESIDENT'S ADDRESS BEFORE THE AMERICAN GYNECOLOGICAL SOCIETY.*

BY EDWARD REYNOLDS, M.D., BOSTON.

Fellows of the American Gynecological Society:

You will all remember that when Lincoln was asked to speak at the dedication of the national cemetery on the battlefield of Gettysburg he embodied in his address the now familiar words, "The world will little note, nor long remember, what we say here, but it can never forget what they did here." The American Gynecological Society owes its pre-eminence along its chosen line less to the words than to the prolonged and daily labor of the eminent men who have composed it in the past, and must owe its future to the life-work of the equally able men who are to fill its membership in the coming years. He who has been elevated, however unworthily, to its presidency must necessarily feel, as he begins his presidential address, that what he has to say here will be of little note nor long remembered; and as he looks back along the line of his distinguished predecessors may well question whether he too can worthily occupy his allotted portion of your too scanty time. Yet he can but feel that so time-honored a custom as the delivery of a presidential address must have a well-established reason for its existence, and, as he searches his thoughts for material that may be worthy of the occasion, may well wonder what that reason is.

In the commercial world there is a custom which is universally conceded to be essential to prosperity, of devoting a periodic portion of its working time to the process known as "taking stock," of pausing in its labors to estimate the present, to review the past, and from its failures or successes to forecast the future. Such, it seems to me, should be the purpose of our presidential address.

The president of the society may not be, indeed, must often feel himself far from the wisest or most devoted of its members, yet his fulfillment during the year of the duties of the office must necessarily have led him to give thought and consideration to many matters affecting the welfare of the society, which, but for those duties, would hardly have attracted his attention. It is therefore fitting that he should have an opportunity of making to the society such suggestions for the better guidance of its business as his work may have led him to conceive.

Among the many and striking changes in the habits of professional life which have occurred within the memory of the elder of you, indeed, among those which we younger men have noted, even in the last two decades, we must be struck with the decreasing prominence of the medical society. With the increasing complexity of modern life in general the annual meeting has become far less the great event of the year than it was to our fathers. With the enormous and from many points of view regrettable increase in the number of medical publications, with the increasing prevalence of the habit of having everything come to the office desk, to be abstracted and prepared by assistants before it reaches the eyes of the chief, the actual hearing of the papers presented at any society has become of less pressing importance to all of us. There has been of late years a notable tendency towards consolidation of local societies and a consequent decrease in the number of meetings of which one is notified, or which he is expected to attend, and although geographical circumstances have as yet delayed the appearance of this tendency among national societies the signs of it are in the air. Few societies still persist which do not worthily fill some special niche. Only such are likely to continue to exist in the future, and we must keep an eye upon our laurels.

The main *raison d'être* of such a society as this must, it seems to me, lie in the opportunity which it, and it only, presents to each of us of knowing and appreciating the abilities of a set of picked men coming from sections distant to us, of knowing and appreciating both the men and their work as we could not without these meetings, and to this end the written paper presented by one man is of far less value than the spoken and more informal debate which calls out the energies and develops the peculiarities of knowledge and ability, even of the foibles and weaknesses, of many men. It is in the discussion, rather than by the written paper, that we learn to know and appreciate each other.

Our program is always a crowded one, and it is desirable that it should be so, that it should guide the discussion through many phases of gynecological work, and set forth the ideas of many men; but to insure full discussion of a varied and interesting list of papers demands, year by year, an increasing accuracy of organization. The twenty minutes' time which we now allot to each reader is already longer than is given by most scientific societies, and I think we have all noted that but few fellows succeed in commanding the undivided attention of their audience for the whole of even this period of time. Yet we must not forget that the papers are afterwards to reach a larger audience through publication, and that it is difficult, if not impossible, to worthily present an important topic within the limit which can be delivered in even a longer time. In this dilemma we may well turn to the collective experience of other societies, to the various expedients which one or another of them have adopted to meet their difficulties, and to a consideration of how such expedients as have been there found useful may be adapted to our peculiar needs.

The use of the printed abstract published beforehand has of late become increasingly prominent in many of our sister societies, and in

* Read at the 29th annual meeting, Boston, May, 1904.

the British Medical Association, the meetings of which have the reputation of being among the most successful and interesting of all societies, this use of the abstract has reached its highest terms, as yet. It is seldom wise to adopt wholesale the regulations of other organizations. It is usually better to let changes follow a more gradual and natural evolution under the needs of the individual assembly, but the methods of the English association may well be worth a passing consideration from you, and especially from those of you who must in their turn guide the destinies of our society.

A fellow of the British Medical Association who desires to present a paper at one of its meetings must put it in the hands of the secretary, complete and in the form in which he desires its publication, a number of weeks before the meeting, and the communication may be of any length he chooses. A paid secretary, a qualified and experienced medical author, then abstracts each paper into the form and length which he considers best fitted for spoken delivery. This official then reads the abstracts to the society, as they are called from the program. Such a reading inaugurates each discussion, and the member whose ideas have been thus succinctly set before his associates takes part in the discussion and closes it. It is said that their experience shows that the ideas of the individual member are by his method better and more intelligibly presented to the society than if he had read to them his complete paper. The time of the society is economized, full debate is encouraged, and at the same time the member has the advantage of publishing to the world a paper in which his points are set forth at the fullest length and without time limitation. Such a method is perhaps too far advanced for our present needs or possibilities, yet it has many advantages, and has seemed to me worth calling to your attention as one towards which we might well advance. A similar method has been adopted by common consent in the Association of American Physicians, and is spoken of with much enthusiasm by the members of that society. Would it not be wise for us to give this method, or a modification of it, a year's trial?

We must not underestimate the value of the other, the social, side of our meetings; but, indeed, none of us are likely to forget or undervalue the warm friendships and charming half hours which accrue to all of us from our membership in the society.

In limiting the remainder of my address to the expression of my opinion that in the now crowded state of our programs it would be better for the society that the conventional length of the presidential address should be curtailed, I feel that if I am right in this opinion, it will be evidenced by the conduct of my successors in this honored office. If their course should show me wrong, may I hope that you will at least believe that I have not been actuated by any unworthy desire to curtail my own labors, but rather that I have been willing to risk the possibility of incurring such odium for what I believe to be the advantage of the society.

In conclusion, may I take this opportunity of expressing to each and all of you my thanks for the kindly personal feeling which must have actuated you when you elected me to your presidency, for which, and for the many personal pleasures which I have enjoyed in this society, I am, and must always gladly remain, your willing debtor.

Original Article.

ACIDURIA (ACETONURIA) ASSOCIATED WITH DEATH AFTER ANESTHESIA.

BY E. G. BRACKETT, M.D., J. S. STONE, M.D., H. C. LOW, M.D., BOSTON.

Presented for the Staff of the Children's Hospital, Boston.

THE attention of the surgical staff of the Children's Hospital has been challenged by the following facts:

On the 6th of October, a boy of ten years and a girl of eight years entered the hospital. Each had an extensive infantile paralysis of long standing. Otherwise each was well at the time of entrance. The boy remained perfectly well until four days after his entrance to the hospital, when he began to vomit persistently. The vomitus was watery, of light green color. Up to that time the bowels had moved freely. The abdomen was soft, but not distended. When the vomiting began, the pulse became very weak and increased in rate from 95 to 150. The temperature which had been normal rose gradually to 105.8. The child became unconscious, the condition gradually failed until death, twenty hours after the onset of the vomiting.

The girl had, on several occasions during the preceding year, had attacks of persistent vomiting, associated with collapse and rapid pulse. The child seemed delicate, but of sound health, except for the infantile paralysis. Four days after entrance, three tendon transplantations were done under ether anesthesia. The operations consumed one and one-half hours in time, but were insignificant in severity, and no blood was lost. The child took ether rather poorly, and during the operation had a rapid pulse. She vomited in coming out from the ether, as is usual, but seemed comfortable and in fair condition twelve hours later. She then suddenly began to vomit persistently. The pulse became very rapid, about 190, and of poor quality; the temperature gradually rose to 106. The vomiting lasted about thirty hours. The child then gradually sank into a delirious stupor and died forty-two hours after the operation, thirty hours after the vomiting began.

Six weeks later, on Nov. 16, a girl of five and a half years, also with an extensive infantile paralysis, entered the hospital. On the day after entrance, under ether anesthesia, the fasciæ on the upper outer part of both thighs were cut by open incision. The operation was short and very little ether was used. The child recovered well from the ether and was comfortable up to thirteen hours after operation. She then began to vomit. During the night she was very restless and noisy, sleeping only three hours during the night following the operation. Twenty-four hours after the operation, the circulation became very poor. In spite of the fact that there was no obstruction to respiration the color became livid blue, the face grew

cyanotic, the extremities were cold, the pulse weak and rapid, the expression was anxious. Thirty hours after operation the child became delirious. On the second morning after operation, the child became more dull and apathetic, until she gradually passed into a condition of coma, and died forty-eight hours after operation.

In this case the peculiar, sweet, chloroform-like odor of the breath led to the examination of the urine for acetone and diacetic acid, both of which were found to be present. No test for acetone was made in the two cases entering on the 6th of October; in one of them, however, the characteristic odor of the breath was remembered very distinctly.

On Dec. 17, two more patients, each with extensive infantile paralysis of long standing, entered the hospital. They were girls, aged six and eight years. One child began to vomit six hours after entrance; the other fifteen hours after entrance. Both became markedly dull and stupid. In each case the odor of the breath was characteristic, each had acetone and diacetic acid in the urine. Both fortunately recovered.

On Dec. 26, a girl four years old entered the hospital. For six days before she had been vomiting at frequent intervals. There had been no movement of the bowels since the vomiting began. The odor of acetone in the breath was very strong, acetone was present in the urine. An intestinal obstruction by Meckel's diverticulum was found and relieved by operation. The child died twenty-six hours later, having gradually become unconscious. In this case the presence of acetone seems probably to have been incidental to the intestinal obstruction; perhaps undue importance was attached to it because of the preceding six cases, in some of which acetone had been found. Operation was delayed a little because it was uncertain at first that obstruction existed.

After this, the sweet odor of the breath was noticed in a number of patients after operation. In these the urine was examined for acetone, which was found to be present. In most of them vomiting occurred, and some showed marked prostration, but in only the following case, however, were the symptoms alarming:

A girl of four, rather delicate and nervous, suffering from double congenital dislocation of the hip, had been operated upon by the Lorenz method five months before. Reduction of the hip had been easily effected, and the limb placed in the frog position with the usual spica bandage. Both hips were not reduced at once, as the child did not seem strong. The patient recovered from the operation without trouble and was returned home after a few days. The child was unable to learn to walk about, and returned to the hospital five months later in rather a poorer condition than on her first entrance, though her condition was not at all alarming. The child was quite nervous and frightened at her second operation. In manipulating the reduced hip, and changing it from the first to the second position, requiring but little force, as well as in the manipulative reduction on the unreduced hip requiring more force (though much less than is required in many cases), a separation of the epiphyses at the lower ends of both femora occurred, which indicated that the child was less strong than at the first operation. A double plaster spica was applied, and the child returned to the ward, the operation having been a short one, not requiring more than half an hour in all. The child recovered from the anesthesia well. There was a little nausea, there was absolutely nothing in any way unusual or alarming in the condition until six o'clock on the morning after operation, an interval of twenty hours. The pulse then grew suddenly weak and rapid, the color became poor, but after a hypodermic injection of strychnine she improved. The child seemed a little dull, there was no vomiting, the breath was sweet. Acetone was found in the urine. Three hours later there was another sudden collapse. During the day the child grew rapidly worse, she sank into a restless, unconscious condition, the lips became very blue. Except for rallying somewhat during the evening, the child gradually failed, until she died forty-two hours after the operation.

These cases present certain features in common: Vomiting associated with collapse; a very weak and rapid pulse; an absence of fever until just before death; cyanosis, in the fatal cases, causing extreme dyspnea; apathy and stupor, alternating with periods of restlessness at first, but in the fatal cases gradually deepening into coma and death; and the presence of acetone in the breath and urine.

Excluding the case of intestinal obstruction, there remain 6 cases in which the symptoms came on without operation. In three of these cases the symptoms came on the day after entrance, and in one two days after. In one case the symptoms came on after the child had been in the ward for four weeks and was up and about. In the sixth case the symptoms came on four days after entrance. This child died.

There are 7 cases in which the symptoms followed operation. Three of these patients died, 4 recovered. In the 4 milder cases which recovered, no symptoms at all appeared within the first twelve hours after operation. The symptoms came on between twelve and twenty-four hours afterward. In the 3 fatal cases alarming symptoms came on after about twelve hours, but in none of the cases was the recovery from the operation quite normal. The condition of the children caused anxiety, although there was no one definite symptom which could be defined as its sufficient cause.

Those children in whom the symptoms were severe were of a high strung, nervous temperament. The symptoms coming on after operation were usually more severe than those coming on without operation, although in the latter group one rapidly fatal case is included.

The first symptom to attract serious attention was, except in one case, the vomiting. The vomitus was always bile stained, becoming dark, but never bloody. In one fatal case, however, vomiting occurred but twice, each time from an obvious cause. Otherwise, the symptoms differed in no way from those in the cases in which vomiting was a prominent symptom.

In one case the symptoms seem unquestionably to have been due primarily to acute intestinal obstruction. And yet, even in this case, the presumably secondary acetonuria confused and masked the ordinary, or what might be termed the mechanical, symptoms of intestinal obstruction.

Restlessness at first was associated with the vomiting. Occasionally there was a certain amount of apathy either preceding or alternating with periods of restlessness.

In the milder cases there was a varying degree of prostration; in the severer cases marked collapse which was often repeated. The children would rally for a few hours only to fail again suddenly.

After a short time in some of the severe cases cyanosis and dyspnea became marked. None of the cases with marked cyanosis recovered. As the color changed, the restlessness was followed in some instance by delirium, but in all the fatal cases there gradually came on a stupor which became more profound, changing gradually to coma. Death in the fatal cases occurred from twelve to thirty-six hours after the onset of the symptoms, generally after about thirty hours. Death seemed to be due in some cases to a lack of oxygen. The struggle for breath seemed very striking till exhaustion came on.

Pathology. — The autopsy reports in the first two cases were made by Drs. Christian and Brinckerhoff. They were both cases of infantile paralysis with extensive muscular paralysis and degeneration of both lower limbs. In the first case there was a double intussusception of the jejunum, which was very evidently post-mortem. No important lesions were noted. In the second case no anatomical lesions were noted; no sufficient cause of death was found. There was a moderately fatty liver and large kidneys.

The other two autopsies occurred after the fact of the acetonuria had been fully appreciated. The third case was one of rather extensive infantile paralysis, dying within twenty-four hours after the comparatively simple operation of fasciotomy. The pathological interpretation of the cause of death in this case was practically negative, except for a very extensive fatty metamorphosis in the liver and less marked one in the kidneys. The fourth case was one of double congenital dislocation of the hips, which died within forty hours after operation. There was extreme fatty degeneration of the muscles of both thighs and a fatty liver and kidneys. In addition there was in this case a large number of eosinophilic cells in the spleen and the glandular epithelium of the stomach, which were only seen in small numbers in the intestine of the third case. These were in some cases phagocytic and similar to the cells which Mallory has shown in scarlet fever and acute infectious disease.

The only marked anatomical lesion which these cases showed was the extreme fatty degeneration of the liver and the muscles. This fact is more interesting when associated with the clinical knowledge that in the eight most severe of these cases there was either a paralysis or some disability resulting in the degeneration and atrophy of an extensive part of musculature.

Fatty liver is generally the result of the quality and quantity of the food and the general constitution. Diet rich in fat and carbohydrates may lead to it. These cases of paralysis in children often are the cause of an over-indulgence in sweets and an excess of milk and cod-liver oil which may induce the fatty liver. Gastro-enteritis in children, and in adults carcinoma, infectious disease, phthisis and drug poisoning are the causes of fatty liver. It will be noticed that these conditions are also associated with the increased excretion of acetone.

We can make no sharp distinction between fatty infiltration and fatty degeneration (Taylor). Pathologic accumulation of fat may occur in the liver without degeneration and without functional impairment of the cells, or it may occur with serious cellular changes. Clinical symptoms are slight if functions remain intact, even with great fat deposit. And that these children were all in apparent good health is evidence that there was not previous fatty degeneration of the liver. The microscopical examination of the liver cells in these cases shows only slight degenerative process and extensive fatty infiltration.

A physiologically fat liver may arise within a few hours after the ingestion of fat, but the extreme fatty liver due to phosphorous poisoning or chloroform similar to the liver in these cases does not develop for two or three days. So it seems evident that in these cases there was nothing in the anesthetic or the operation to produce the extreme fatty infiltration of the viscera. At least, we have proven that in animals the administration of acetone does not produce fatty liver unless it is prolonged for some time.

It is probable, however, that the fatty liver in these cases was not a sufficient cause of death, but that it was only associated, as is the acetonuria, with an acid intoxication which may, through general toxemia, or an excessive process of oxidation in the blood causing lack of oxygen, have been fatal. In clinically healthy children, such as these appeared to be, the fatty liver is rare. Wollstein in 390 autopsies in children found fatty liver in 133 cases (28%) and an extremely fatty liver in 39 cases (10%). These conditions, however, were noticed especially in cases of suppurative inflammation, pneumonia, and intestinal disease.

The adipose tissue of the body furnishes the fat in the liver. This has been proven by fattening animals for some time on mutton fat, and then producing a fatty liver by the administration of phlorizin, and observing that the acute infiltration of the liver consisted of mutton fat (Rosenfeld). In starved chickens, phosphorus does not cause fatty liver. So it may be that the disturbed metabolism of these cases is sufficient to cause an intoxication similar to that of phosphorus, and, occurring in these individuals with very extensive fatty deposits in the muscles and subcutaneous tissues, has a great store of fat to draw upon to cause the hepatic deposits. Although the presence of these primary intestinal poisons has not been shown, it is probable that they do exist and are the cause of the formation of the acetone bodies (Kraus). In phosphorus poisoning there is a marked increase of acetone excretion, due to the destruction of fat tissue, and this is probably true of acetone excretion after chloroform and other forms of narcosis (Schwarz).

The first two of these cases died in October, 1903, and the odor of the breath in them aroused the suspicion of acetonemia. Since the first of November, 425 surgical cases have been admitted to the wards of the Children's Hospital, and over

300 of them have been tested for acetonuria. Acetone has only been found present in the urine in 11 cases, and it has always been associated with other more or less severe symptoms.

The urine was tested in these cases by the standard tests for acetone and diacetic acid. Five cubic centimeters of urine, a crystal of sodium nitro-prussiate and a sufficient quantity of sodium hydrate to make it strongly alkaline were shaken up in a test-tube. The addition of glacial acetic acid to this gives a purple color to the foam if acetone is present. The urine was tested for diacetic acid by the addition of the strong aqueous solution of ferric chloride. A Burgundy red color shows its presence. This test for acetone is a modification of Legal's, and is at least more delicate than Gerhardt's, Le Nobel's or the sulphuric acid tests. Of course, this is not by any means a quantitative method, but it nevertheless allows one to distinguish between the presence of a trace and a considerable excess. A slight modification was introduced by one of the internes which made it even more delicate. A piece of bibulous paper, dipped in the foam and then dried, showed the characteristic purple color more delicately in the presence of quite small amounts of acetone. The more difficult quantitative tests were not practical in the routine of hospital work. In only one case was a quantitative test of the urine made.

The presence of acetone in the urine of ordinary cases of *diabetes* was first recognized by Petters in 1857, and soon after this Kaulisch described the clinical picture known as acetonemia. Many physiologists have demonstrated the presence of acetone normally in the urine. An excretion in the urine of 0.02 gm. per twenty-four hours is physiological; but under pathological conditions this may be enormously increased. The lungs excrete more acetone than the kidneys (Gelmüyden, Schwarz, L. Müller), but there is only a very small amount carried off in the feces.

There are various conditions, mostly associated with alimentation, in which acetonuria has been noted. First, in diabetes, especially of long duration, acetone is generally present in the urine. In starvation, inanition and the cachexia of malignant growths it is not uncommon, and with but few exceptions, it occurs in pregnancy with dead fetus. In peritonitis, where there is often auto-intoxication, and in the fevers of acute infectious diseases, sepsis and pneumonia, acetonuria occurs. In various nervous lesions and mental disease there is often a digestive disturbance which results in acetonuria. The excretion of acetone has been much increased artificially by alimentation, by drugs as phlorizin, and in chronic morphinism; in experiment by extirpation of the solar plexus or pancreas, and after general anesthesia.

Not even with the recognition of an excess of acetone excreted in the urine under these pathological conditions, do we have sufficient evidence of the existence of acetonemia. It is far from sure if acetone is really the toxic substance in the blood as Kussmaul thought; it is more probable that it is some of the various fatty acids from which acetone is obtained. Acetone may be in excess in the blood without producing marked symptoms or anatomical lesions. Considerable quantities can be exhibited with no harmful effects and very little increase in its secretion (von Jaksch, F. Müller, Kussmaul, Frerichs and Schwarz). We have injected, both intra-peritoneally and subcutaneously, large amounts into guinea pigs without causing anatomical lesions, unless the administration was prolonged for many days.

It is probable, as Naunyn says, that acetone *per se* is practically harmless; that the so-called picture of acetonemia is an acid intoxication or an acidosis due to the presence of diacetic and β-oxybutyric acids, and also probably lactic and various volatile fatty acids. At least, up to within the last two or three years the importance of acetone as a poison in the system has been overestimated. β-oxybutyric acid, the principal one of this group, is harmful only through its acid property of removing alkali from the body tissue. It may remove not only the fixed alkalis but also the bases of the proteids (Magnus-Levy) and thus destroy the efficiency of tissue very needful to life. However this may be, it is evident that the quantitative estimate of the acetone excretion is less important than the total acidity of the urine.

In one case of our series, the quantitative estimation of the acetone in the urine was made by Dr. Joslin. This was a child of eight years, dying twenty hours after the operation of fasciotomy. The total excretion of acetone for twenty-four hours was shown to be approximately 142 mgm. which is considerably more than normal. In cases of diabetes of long duration the daily excretion of acetone during the state of coma often reaches 100,000 mgm., but it may be true that the diet favors the secretion, and the accommodation of the system becomes gradually accustomed to the effects of this great formation of acetone.

Joslin has shown that the ingestion of 100 gm. of oleic acid will cause in a healthy man an excretion of over 1,700 mgm. of acetone in twenty-four hours without producing any other symptoms. He did not administer different amounts of the oleic acid to show whether the excretion of acetone was directly dependent on the amount ingested, but he did observe that those fatty acids that were only partially absorbed produced much less acetonuria. In these experiments the acetonuria was probably the direct result of fatty metabolism of the ingested fats taking place in the intestine, which, though of sudden inception and resulting in the formation of very large quantities of acetone, did not compare in its seriousness with a similar process taking place in the body fats of the liver and muscles.

The comparatively small amount of acetone excreted in one of our fatal cases shows that the quantitative estimation of the acetone excretion does not give a true index of the severity of the

condition, and that the presence of any considerable amount of acetone in the urine should be considered only as a probable sign of a more or less serious acid intoxication.

Now in these eleven cases showing acetonuria, there were only two in which diacetic acid was not found in the urine, and in one of these the test was not made for it. This is in accord with the idea that diaceturia and acetonuria cannot be separated (Lorenz). In most severe disturbances both are seen or they may alternate. This was clearly evident in case five in which the quantities of acetone and diacetic acid varied alternately from day to day. Gerhardt was the first to recognize this association of diacetic acid with acetone in the urine, which leads to the explanation of the origin of the acetone, from the acids, diacetic and β-oxybutyric.

Acetone has generally been said to have its source in the destruction of proteids, such as takes place in fevers and starvation. Though tissue destruction is conceded to be essential, it is not evident that acetone is the result of the breaking down of proteids (von Noorden, Honigmann). Acetone excretion may be diminished by a diet of proteids. Waldvogel administered to fasting men a diet of pure proteids and one of pure carbohydrates, but in neither case did acetonuria occur. Stadelmann and Minkowski showed an exception to this in the case of diabetes where, due to a sudden and complete administration of a meat diet there was a diminution of carbon dioxide in the blood, making it less alkaline, and coma and acetonuria resulted. A diet of proteids does not *increase* and a *diet* of *carbohydrates* generally *diminishes* the production of *acetone*. A reduced proteid diet causes the excretion of considerable acetone as a result of the destruction of body tissue (Schwarz). And in cases of poor nutrition we know that the fats of the body are drawn upon first. Bernert found acetone present eleven times in ninety-four cases of typhoid fever, but he says after the intestinal disturbance with the high fever had subsided, it was due to subnutrition and disappeared when the proteids were fed freely. Chemically there has never been success in producing acetone from proteid, but as it has been formed from gelatin (Blumenthal and Neuberg) it is probable that it may be obtained from proteid. It is, however, readily obtained from fats, and has been obtained from carbohydrates.

A constant excessive fat diet causes a large increase in the excretion of acetone (Waldvogel). When fats were fed to starving people acetonuria developed; but the subcutaneous injection of fat did not cause this result. So acetonuria is probably dependent on a fat metabolism generally associated with intestinal disturbance. That it can be induced artificially without intestinal disturbance is very true. In the normal person with full diet the addition of fat causes only a very slight increase of acetone excretion (Schwarz). A diet largely of fats, especially the volatile fatty acids of butter, results in acetonuria (Schwarz, Satta, Joslin). In the experiments of Joslin the ingestion of large amounts of sodium bicarbonate greatly increased the acetone excretion, but the reason for this is not known, and it is opposed to the statement of von Noorden that alkalis frequently decreased the excretion of acetone.

The formation of acetone is due to fatty metabolism with the formation of free fatty acids, and is largely dependent on a reduction of the carbohydrates and proteid diet and general sub-nutrition. In most of the pathological conditions in which acetonuria is recognized clinically there is a sub-nutrition, or an intestinal disturbance which results in a defective nutrition of the body, and it is associated with waste of body tissue. It may be the body fat or the food fat which is the source of the acetone, but the immediate cause is the disturbance of the metabolism.

The recognition of the occurrence of fatalities after narcosis, in which acetone and its allied compounds have been present in the urine, is by no means new. In 1894 Becker, from the Bonn clinic, reported three fatalities, after operation on diabetic subjects, in which the clinical conditions were quite similar to those observed in these and other isolated cases. The clinical symptoms in the three cases of Becker were so similar as to suggest some common cause, the condition noticed beginning as a slight but increasing dullness after the anesthetic, and after twenty-four to forty-eight hours the occurrence of a stupor, passing into a complete unconsciousness and coma, with a lack of autopsy findings. All clinical conditions seemed to him to point to some form of poisoning through acetone, and his experience with these led him to investigate the literature, where he found reported twelve fatalities, under like conditions. These were all associated with marked acetonuria, but were in cases known at the time, or after found out to have been, diabetic subjects. The condition of the patients before operation had not been such as to give reason for apprehension for the outcome, nor were the operations in themselves such as to give cause for alarm. It led him to formulate, from his observations, the statement that diabetic patients, who, even up to the time of operation, had shown no unusual symptoms under ordinary conditions, were, through some form of disturbance of metabolism, liable to pass from the narcosis into a stupor, and finally into a fatal coma, and that this is due to a condition which, at the time, was known as acetonuria, the term then used to indicate the manifestation of the presence of acetone in the secretions, particularly in the urine. There were no pathological findings in his cases which came to autopsy, except that in some there were lesions in the organs, similar to those found in cases of severe phosphorous poisoning. His supposition was that in some way the effect of the anesthetic was such that this condition resulted. This series was, however, collected from the

literature in which they had been reported as unusual fatalities, and they had not been so thoroughly investigated as would have been the case, had special interest been brought to bear on them. Becker's three cases of the series were distributed over a period of a number of months.

Brewer, in *Annals of Surgery*, October, 1902, reported a fatal case of acetonuria occurring after an operation for appendicitis. The case had presented nothing unusual in the condition previous to the operation to intimate an unusual result, and the operation itself offered nothing of remarkable interest. In clinical symptoms, the condition following the operation closely resembled the cases of Becker, and those of the series here reported, the acetone being detected both in the urine and breath.

In 1903 Dr. Leonard Guthrie published an article on "Fatal Effect of Chloroform in Children Suffering from a Peculiar Condition of Fatty Liver," in which he describes exactly the clinical condition fround in the cases here reported. In addition to his own, he collected a large number of cases of fatal results after chloroform, in which at autopsy there was found the same peculiar condition of fatty liver. In a number of cases the symptoms were what he called the "cerebral type," and these had so close a resemblance to the cases here under observation that a portion of his description could almost be taken as an illustration of some of those here reported. In it he says: "After recovery from the immediate effects of the chloroform, there was usually an interval of a few hours, at the end of which the child would begin to utter piercing cries at intervals, disturbing the whole building by its shrieks, grinding its teeth, tossing, struggling, and requiring constant attention lest dressings should be torn off or fractured bones displaced. The pupils were often dilated, sometimes unequally, the face being flushed or pale, with a look of wild terror and anxiety. Consciousness was sometimes lost early and never regained; sometimes there were intervals in which the child would be dull and apathetic, but would answer rationally when addressed, and usually deny being in pain. Vomiting was a marked feature in all but one case. It was copious, frequent and persistent, and the vomited matter sooner or later almost exactly resembled the dregs of beef-tea. In one case it was described as 'bloody,' and in another as 'coffee-ground.' Headache seemed to be absent in all cases. Pyrexia, was not a marked feature, but in some instances it rose to 104° or more. The screaming at length subsided, perhaps lulled by the morphia and other sedatives given, the vomiting became less frequent, unconsciousness led to coma, and the respiration and the pulse gradually failed, the latter becoming often imperceptible before breathing ceased. In some the vomiting and the restlessness continued almost till the end, and death occurred, with suddenness, from heart failure." In his cases the urine was examined and note made of albumin. It was reported as never suppressed, but no mention was made of the presence of acetone or its allied compounds, or of any attempt to find it. He considers at length the probable causes of the condition, among them fat embolism and toxemic poisoning. The question of carbolic acid poisoning was considered, but this cause was found to be impossible. These cases seem to have particular interest, inasmuch as they so closely resemble, clinically, this series here reported, and also that in the pathological findings they so closely resemble two of this series. In others of his, as in this series, also, there was no pathological condition found. All of his reported cases occurred after a narcosis by chloroform, but it must be remembered that this was the agent used by him.

The conclusions which were given by Guthrie as to the cause of death in his cases were:

(1) In all but two cases due to auto-intoxication.

(2) Fatty condition of the liver, and therefore functional disturbance of that organ resulted before operation.

(3) Chloroform and operation shock combined aggravated the condition already present, and led to the formation of toxic alkaloids which the kidneys were unable to eliminate.

Guthrie, in support of the theory that it was due to fatty infiltration of the liver, quotes results by a number of men who experimented upon the effect of chloroform on animals for a greater or less period. These researches appeared to prove that long continued administration of chloroform produced fatty changes in body in general, and in the liver particularly. It was also found that the fat which appeared in the organs a few hours after the inhalation of chloroform did not disappear for several days.

With the exception of Becker's three cases which occurred in diabetics, and Brewer's isolated case, no mention is made of the seriousness of this condition, independent of its association with diabetes, but the cases were reported as being of interest, as they were fatalities after operation, under conditions which had given no cause for alarm. The phenomenon of acid auto-intoxication had then been thoroughly recognized, other than in its association with diabetes. The condition had been studied by von Jacksch, Lorenz, Baginsky and others. Baginsky, in 1888, from a thorough study of the subject, reported that acetone is frequently present in fever patients, the amount corresponding to the height of the fever; that it also came from disturbances of the metabolism, and could be induced by the cutting off of some forms of nourishment, as shown both in experiments and bedside observations.

Its occurrence after an anesthetic, and in individuals in whom there had been, up to the time of the operation, no unfavorable symptoms, although diabetic, led Becker to investigate as to whether this might have resulted from the use of the anesthetic, and whether the kind of anesthetic made a difference in the production of acetone, and he made between fourteen and

fifteen hundred observations, with narcosis by different agents, with reference to its effect in producing acetone in the urine. It was shown by these, that there usually existed, after a narcosis, for a longer or shorter time, and in healthy people, a distinct amount of acetone in the urine. This occurred independently of the form of anesthetic used, although ether being the usual form of anesthetic used in the Bonn clinic, the larger number of observations were made with this agent. It was also found that acetonuria appeared without being influenced by the length of the narcosis, the kind of disease, or operation, whether bloody or bloodless, or by age in the adult person, or sex. It was found, however, that children were far more susceptible in this respect; that in children, a larger number of cases of acetonuria appeared, and the amount of acetone was greater. The average duration was from two to three days. In some cases, however, it did not disappear until the eighth or ninth day.

Lorenz, in 1890, from his observations, was inclined to attribute it to gastro-intestinal disturbance, and recognized the different forms of allied intoxications. He also pointed out the fact that it was found in those forms of gastro-intestinal disturbance which were secondary to a nervous affection, but also showed that the amount of acetone was much less when the disturbance was of nervous origin. That it could be caused by intense nervous disturbance, as fright, was shown by the well known experiment, in thrusting a dog from a window at a high altitude, as if to throw him out, and the presence of acetone demonstrated in the urine after the conclusion of the experiment.

ETIOLOGY.

The question at once arises as to the cause of the condition in the cases here reported. It is obvious that something incident to entering the hospital induced the condition in some cases, while in other more serious cases it was induced by the operation or something incident to it, and yet it is plain that there must be some deeper underlying cause or causes. A number of conditions are suggestive as having an etiological bearing, and are to be considered.

In such a series of cases the first thought is that the conditions might have resulted from anesthesia, or that they were in some way the remote results of the anesthesia. In analyzing the cases, however, we find that in one of the fatal cases and five of the milder cases the symptoms came on without operation or even anesthesia. One of the fatal cases had taken ether and been operated upon several months before without any ill effects whatever. In one case ether had been given several years before without any ill effect, and ether was given again a few days after the acetone had disappeared from the urine without any ill effect and without any reappearance of the acetone.

It seems fair to conclude, then, that anesthetization alone does not bring on the condition, or at least in a serious form.

Operative interference and operative shock cannot be regarded as the underlying cause, as is evident from the fact just stated, that in five milder and one fatal case the condition came on without operation. Furthermore, in none of these cases were the operations severe. None showed the ordinary symptoms of shock. None lost much blood, and in none was there any extensive injury of the tissues.

Ptomaine poisoning. — The question will be asked, Is not this condition one of ptomaine poisoning? The sudden onset, the nature and the severity of the symptoms, certainly suggest it, but in no case was there any diarrhea, which is scarcely ever absent in ptomaine poisoning if the patient lives long enough. There was no material rise of temperature except in the fatal cases soon before death. In one case the vomiting was slight, though otherwise the symptoms corresponded exactly to those in the other fatal cases. Furthermore, other children in the same ward at the same time and eating the same food have shown no symptoms to suggest ptomaine poisoning. These facts seem to bar out poisoning from this source.

Homesickness is suggested as a cause of the symptoms. The fact that the condition appeared usually about twelve hours after operation, no matter how long the child had been in the hospital before, would not necessarily militate against this suggestion. One patient, however, a boy with acute hip disease, four weeks after entering the hospital, while up and about the ward, was taken sick with vomiting and marked collapse. The vomiting lasted but one day, and acetone persisted for three or four days. In this case homesickness certainly was not a factor. The condition occurred also in other children who had been in the hospital before, who were old enough to know what they had been through, what they had to expect and who seemed absolutely happy. In one of the milder cases, however, a child who spoke no English and who cried constantly really seemed to bring on the condition.

Fright has been suggested as a possible cause. Two children had been in the hospital and knew what they were to expect. In some of the cases dread or homesickness or both did exist, but not to any greater degree than with many other children. The acute fright sometimes incident to taking ether did not seem to be more prominent in any of the cases than in many other children, though in the last fatal case it was quite noticeable.

One condition existing in the hospital at the time of the occurrence of these cases, though fortunately since removed, should be mentioned. Owing to the increased demands of the operative work at the hospital, the recovery ward for children after operation was taken as a service room. It had been the practice to return the patients to the wards immediately after operation. The children in the wards were necessarily

witnesses of the recovery from the intoxication of anesthesia with the noise and incoherent exaggeration of suffering. It is manifest that such a condition of affairs was calculated to increase the nervousness and anxiety of a nervous child and may have served as a contributing cause to the alarming symptoms under consideration.

The confinement of the hospital may possibly be regarded as a factor. Yet it seems that four days' confinement could not possibly have brought on a fatal condition, and it seems unlikely that the conditions would, if caused by confinement, come on after four weeks' stay, while the child was up and walking about the wards.

Change of food.— One very important factor suggests itself, especially in view of what is known in regard to the appearance of acetone in the urine after fasting, especially after cutting off of carbohydrate food. The change in diet on entering the hospital or the loss of appetite incident to it or the starvation and thirst incident to the taking of ether are factors present in every case except one, that of the child in whom the condition developed after four weeks' stay in the hospital. On the other hand it seems inconceivable that symptoms sufficient to cause death should come on so soon as a result of change or diminution in the amount of food, taken except in the presence of some other underlying conditions. In these cases the after effect of ether, the shock, or even the change in conditions and diet may have been sufficient to cause an intestinal disorder with disturbance of metabolism which set free from the excess of fats stored in the liver, muscles and subcutaneous tissues various fatty acids which caused the serious symptoms and were partly changed to acetone and so eliminated.

In looking over the cases one very striking fact appears. Barring out the fatal case of intestinal obstruction, there remain four fatal cases. Three of these had very extensive atrophy of the muscles of the lower extremities resulting from long standing infantile paralysis; the fourth had marked muscular atrophy, the result of confinement of one lower extremity in a plaster of Paris spica bandage for several months. Of the nine cases which recovered two had extensive infantile paralysis, with its consequent muscular atrophy; one had muscular atrophy; one had very acute hip disease associated with marked atrophy of the limb. Thus all the fatal cases and four of the nine cases which recovered had marked and extensive muscular atrophy. It seems a little unreasonable to maintain that two of the remaining five cases had muscular atrophy resulting from rickets, for the consequences of which they were admitted.

As Waldvogel says, acetone is certainly a production of fat, and it appears in abnormal amounts in the urine when the demand for energy must be met by tissue waste and the breaking down of body fats, and when there are large amounts of fat in the intestine. There was not in these cases any excess of fat ingested, but the store of body fat was in nearly all of them exceptionally great, and though they were apparently well, it is evident that most of them were afflicted with some chronic wasting trouble, which made them more susceptible to a slight change of conditions, or this demand for energy which could only be met by breaking up the store of fats into nutritious and at the same time toxic products.

At least, it remains for experiment to prove whether an extensive fatty degeneration of the muscles may not take away the metabolic efficiency of so much muscle tissue, and leave a deposit of fat to co-operate with the fatty liver in the cause of the serious results associated with acetonuria.

There are many conditions in these cases which present questions of special interest. A number of similar cases have been presented by different observers, and cases having so close a resemblance that they must be considered to be of like etiology. This group of cases, however, has a bearing of special interest, in that it represents a series, occurring within a comparatively short time, under different conditions, but alike in clinical manifestations. In looking back over the history of the hospital, a number of cases are brought to mind, by all connected with the institution, which, clinically, so closely resemble these as to be considered by them as undoubtedly of like origin; but in no instance, however, have they occurred in such a way that they could be regarded as a series, or grouped as regards their relation to time or etiology.

No attempt is made in the presentation of this series to formulate a definite theory as to their causation. At the present time, not enough is known about the physiological condition which results in the appearance of acetone and its allied compounds, to formulate a complete working theory. In the present state of knowledge, one can offer only the suggestions which have been given in the clinical presentation of the paper, and which point to the different conditions under which they have made their appearance. Neither is the opinion offered that the condition as seen, or that the fatal results, are due to an intoxication with acetone from its presence in the blood, for it is known that the same symptoms are present when ether allied compounds are found in the blood, urine and breath. It may be that the poison is not particularly injurious when acting on proteids in circulation, but becomes so when demanding its affinity from that which is fixed in the cells.

The object is to report, (1) The occurrence of these cases which give a distinct clinical evidence of being a form of acute intoxication, due in some way to a disturbance of the metabolism, and which has, among its peculiar manifestations, the presence of acetone and its allied compounds in the excreta. (2) The occurrence of these cases in a series or group, comprising twelve or more, in the course of a comparatively short period. (3) Their apparent occurrence under many conditions, but particularly fatal when following the administration of an anesthetic, and under cir-

cumstances which gave no reason to expect an untoward result.

This series of cases establishes certain facts. It can be stated positively that the symptoms are not the result of anesthesia, operation or shock, unless in the presence of certain underlying causes still undetermined. It is merely suggestive to say that most of the cases have occurred in children with a high-strung, nervous temperament. In such children the confinement, the changed habits, the changes in diet, the homesickness, the dread of operation, the anesthesia, and the operation itself, may lead to changes in metabolism which have not hitherto been taken into account. These changes may lead to serious or fatal consequences unless all the organs, including the muscular system, are not only sound, but performing their functions normally.

The fact that acetone is found in such very much larger quantities under various conditions without producing symptoms, and the fact that experimentally acetone can be injected into the blood of animals without producing symptoms, as has been shown above, prove that the presence of acetone is not the cause of the symptoms in the series of cases reported.

The fact that acetone had been very rarely found in the urine of the children in the hospital, except when there were the symptoms described in the cases reported, suggests that the toxic agent may be produced by the same conditions which cause the appearance of acetone in the urine, and that the appearance of acetone in the urine, in quantity sufficient to give the ordinary clinical reaction, is to be regarded as an indication of serious and possibly dangerous disturbance of metabolism.

In the cases reported, it is plain that the ordinary cardiac stimulants, brandy, strychnine, digitalis, proved useless. Acting on the assumption that the symptoms were due to an acid auto-intoxication, bicarbonate of soda was given to all the cases after acetone was found in the urine. Some of these cases died, though even to them the soda seemed to give sometimes temporary relief. Several of the children who recovered were seriously sick before the soda was given. So far as can be judged from the limited number of cases, bicarbonate of soda or some other alkali is the only remedy which promises to be of any decided benefit, and should be given in large amounts by mouth and in enemata. In some instances, the infusion of large quantities of salt solution under the skin or into the veins seemed to be of decided, though usually of only temporary, benefit.

This report is given with the hope that it may stimulate further and more careful observation of cases, for although one is not able to point to the definite origin of the disturbance, yet one may, in conclusion, give certain suggestions in regard to it which are gathered from a study of the different conditions under which the phenomena occurred. These suggestions are based upon circumstantial evidence, but point to the need of paying more attention to certain conditions in the hospital care of children, both operative and nonoperative. These are: First, that greater attention should be paid to temperament, and to the conditions which influence it, realizing the anxiety and fright, with the accompanying physical disturbances, caused by entering a hospital, remembering that these are particularly noticeable in children of high-strung and apprehensive temperament. Second, that the absence of any gross evidence of a pathological condition, as shown by heart murmurs, evident changes in the lungs and kidneys, or abdominal tumor, may not constitute immunity from the danger of acetonemia, and possible death after operation. Third, decided caution should be paid to those cases in which there may be reason to suspect a fatty condition of the liver. The reported experience of many writers, as well as that derived from those cases here reported, warrant this view. Fourth, it is more than probable that unusual care should be exercised in those cases showing extensive degenerative change, and, particularly, degenerative muscular change, such as is seen in extensive infantile paralysis. The large percentage of cases in this series, which present this condition, seems to indicate that special stress should be laid on this point.

CASE I. L. R., a boy, aged ten years, of Roxbury, entered the Children's Hospital on Oct. 6, 1903.

Excepting for measles, the child had always been well until an attack of severe infantile paralysis nine months before. He had in part recovered the power to use his arms, but there remained paralysis of some muscles of the back and abdomen, and complete paralysis with marked atrophy of all the thigh and leg muscles on each side. The urine was acid, clear in color, and free from sugar and albumen. The pulse was 100; the temperature 99.5.

Four days after entrance, up to which time he had been perfectly well, the boy began to vomit persistently. The bowels had moved freely. The vomitus was watery, of light greenish color, not fecal. The abdomen was soft, and not distended. This lasted for two days, and on the third, the condition was improved, and the vomiting nearly ceased. Toward evening the pulse became very weak and rose from 95 to 150. The temperature, which had been normal, shot up to 105.8. There was no response to stimulation. The child became unconscious, and died in about twelve hours.

Autopsy, Oct. 11, 1903. Dr. W. R. Brinckerhoff.

Body of a well developed, fairly nourished white boy, twelve years of age. Rigor mortis present. Pupils equal, of normal size. Subcutaneous fat 1 cm.

Peritoneal cavity: Surface smooth and glistening. Two greenish black coils of jejunum lie on the left side of the cavity at the level of the umbilicus. These two coils, respectively each 10 cm. long, are somewhat distended, and in the upper end of each coil is an intussusception. The invaginated portion of the gut is 1.5 cm. in diameter; the greenish black distended portions being 3 to 4 cm. There is not fibrinous exudate in this region. Appendix normal. Mesenteric lymph nodes normal. Diaphragm at normal height.

Pleural cavities normal.

Pericardium contains a few centimeters of clear,

straw-colored fluid. The epicardium on the posterior aspect near the auricular-ventricular groove presents a few 1-mm., cherry-red spots. Other valves and cavities normal. Myocardium normal in color and consistency. Heart weight, 120 gms.

Lungs: Air containing, crepitant and pink.

Spleen: Weight 40 gms. Consistence flabby; color light red.

Pancreas normal.

Liver: Weight 1,130 gms. Light yellowish brown; markings distinct. Gall bladder contains much bile.

Gastro-intestinal tract: Mucosa presents no ulcerations at any point.

Stomach contains bile, stained fluid and the mucosa on the summit of the folds is somewhat injected. Duodenum and first portion of jejunum normal. Twelve centimeters of the intestine above the first intussusception contains a greenish black tenacious material (changed blood). The distended bowel below each intussusception is filled with the same material, which extends to a point 20 cm. or more below. The remaining portion of the intestine contains rather fluid, normal contents. The mesenteric veins tributary to the intussusception are normal.

Kidneys: Weight 130 gms. Pale, reddish brown; capsule strips readily leaving a smooth surface. On section cortex is pale brown; markings distinct. Adrenals normal. Bladder normal.

Cranium not opened. Cord: Consistency normal throughout. On section in the lumbar region is a pin-point, reddish area in one anterior horn.

Anatomical diagnoses. — Double intussusception of jejunum. Punctate ecchymoses in epicardium. Anterior poliomyelitis (clinical).

CASE II. M. J. B., a girl, aged eight years, of Fitchburg, entered the Children's Hospital on Oct. 6, 1903. She had an extensive infantile paralysis involving most of the muscles of both lower extremities which came on five years before, and necessitated the use of crutches in walking.

On several occasions during the preceding year, the child had several very acute attacks of severe and persistent vomiting, accompanied by marked prostration and rapid pulse, and the physician in attendance stated that the condition of the child at the time of these attacks, very closely resembled that described to him as existing on the first day of the fatal one. The attacks were severe enough to cause considerable alarm as to their outcome.

The child seemed rather delicate, but was well nourished, and physical examination showed nothing abnormal aside from the infantile paralysis already mentioned. The urine was acid, with specific gravity of 1,020, free from albumin and sugar. The pulse was 100; the temperature was 100.

Four days after entrance the child was etherized, and three tendons were transplanted. The loss of blood was insignificant, though the operation and the application of the plaster bandages kept the child under ether about an hour and a half. The child took ether rather badly, being rather blue, and having a rapid pulse, but at no time during or immediately after the operation, was there ground for anxiety in regard to the condition.

During the recovery from ether the child vomited as usual, and then seemed comfortable, and in good condition till twelve hours later. She then suddenly began to vomit persistently. The vomitus was at first watery and light green in color, but later dark. The pulse became very rapid, jumping to about 190, the temperature rose to 106. The vomiting lasted for about thirty hours. The child, who had been restless, gradually sunk into a delirious stupor, and died forty-two hours after the operation, thirty hours after the vomiting began.

In this case no test was made of the urine for acetone or diacetic acid. It was clearly recalled afterward, however, that the peculiar odor of the breath was very strong. Stimulation had no effect.

Autopsy, Oct 12. Dr. H. A. Christian.

Body of a well-developed, well-nourished female child.

Pleural cavities are free from adhesions and contain a normal amount of fluid.

Pericardial cavity likewise normal. Heart: Weight 100 gms. Scattered over the surface of the left ventricle are about one dozen subpericardial ecchymoses from 1 to 2 mm. in diameter. Heart of normal appearance throughout.

Lungs: In the anterior portion of the mediastinum in the loose areola tissue there are numerous small gas bubbles, and on the surface of the anterior portion of the right lung there are several subpleural areas about 3 mm. in diameter, and 1 cm. in length, which are distended with gas. These suggest in course the distribution of some of the subpleural lymphatics. About these, as also about the gas bubbles in the mediastinum, there is no evidence of inflammatory reaction. The surface of both lungs is smooth. The lungs anteriorly are grayish pink; posteriorly darker red; are everywhere air containing. Anteriorly they are more evidently crepitant, though there is a distinct crepitation posteriorly. The bronchial mucosa is very slightly congested; there is no apparent exudation. Bronchial lymph nodes show no change.

The thymus is quite large, coming well down towards the base of the heart. However, it is not very thick, and there is no evidence of any pressure on the deeper tissues from this.

Abdomen: Subcutaneous fat well developed. Peritoneal cavity, particularly on the left side, contains a considerable amount of dark, sour-smelling fluid. This is seen to originate from the stomach, and greater curvature in the region of the spleen is completely digested away. (This is apparently a post-mortem change.)

Vermiform appendix normal, free from adhesions. Mesenteric lymph nodes show slight general enlargement. The intestines are contracted. Peritoneal surface everywhere smooth and glistening.

Spleen is of normal size; is smooth. Its surface is much discolored in places by the action of intestinal gas; it is soft and flabby; cut surface is grayish red. Malpighian bodies are not made out with distinctness. There is a moderate increase in the pulp. The spleen was exposed to the action of the gastric juice, and some of the softening may be due to this.

The stomach, with the exception of the area of self-digestion, appears normal, as do also the intestines.

Pancreas is normal.

Liver: Weight 510 gms. Surface is smooth and irregularly mottled with yellowish areas from 3 to 5 cm. in diameter, scattered over a reddish brown surface. Cross section is yellowish brown in color. Markings are indistinct. There are a few very small areas of a darker reddish color.

Kidneys: Of normal size; capsule strips readily leaving a smooth surface. From cut surface cortex appears to be of normal thickness, is greyish in color; glomeruli are visible as small reddish points; pyramids are redder in color, and their markings are quite distinct. The contrast between the two is quite sharp.

Adrenal glands normal. Bladder normal. Aorta normal. Genitalia normal.

Brain: Weight 1,360 gms. The meninges everywhere appear normal. There is no evidence of exu-

dation nor chronic thickening. There is no apparent increase of subpial fluid. The ventricles do not contain an increased amount of fluid and the ependyma is smooth. The choroid plexus are also congested, as are also the meningeal blood vessels. Section of the brain in the usual way reveals no lesion. There is no evidence, either by flattening of the convolutions, or pressure ring on the cerebellum, of increased cerebral pressure.

Spinal cord shows, particularly in the lower lumbar region, an atrophy of the anterior horn on one side. The blood vessels lie on the surface of the cord, are much congested. No other lesion found.

Anatomical diagnosis. — Chronic poliomyelitis, anterior.

Cultures. — One culture spleen — bacillus of colon group. Two culture liver — very slight growth of same.

None of three show any staphylococci or streptococci.

Histology. — Spinal cord: The anterior horn of one side shows marked atrophy with almost complete disappearance of the anterior nerve cells.

Anterior mediastinum: The loose tissues of the anterior mediastinum show an acute inflammatory process of slight degree, evinced by the presence of polynuclear leucocytes in the tissue, adjacent to the gas cysts described in the gross. Sections of this tissue stained by Gram-Weigert method show no micro-organisms. Sections of liver, spleen, kidneys and lungs are negative. From these sections it is evident that to the marked process in the cord there is added some slight acute inflammatory process in the anterior mediastinum.

CASE III. E. W., a girl, aged five and a half years, living in Fall River, entered the Children's Hospital Nov. 16, 1903. When a year and a half old she had a severe attack of infantile paralysis, which kept her in bed some time with a high fever. A very general paralysis of the muscles of the thighs and legs persisted with contracted fasciæ, causing permanent flexion of the thighs, for the section of which she entered the hospital. The child has been about on crutches for about a year. Otherwise, the history was unimportant and the physical condition showed nothing abnormal, except, as was afterwards found, a slight trace of diacetic acid in the urine. The pulse was 100; temperature 99.

On the day after entrance, early in the morning, fasciæ at the upper outer part of both thighs were cut by open incision. The operation was very short, and very little ether was used. A double plaster of Paris spica bandage was applied.

After operation the patient seemed comfortable and passed a little urine. At 11 P.M., about thirteen hours after operation, she vomited a small amount of dark-brown thin fluid, and during the next ten hours vomited similar material several times. She slept in all three hours during this time. While awake she was very restless and noisy.

Twenty-four hours after operation the condition of the patient was very poor. The extremities were cold, the pulse was weak and rapid, the expression was anxious. The peculiar sweet odor of the breath became noticeable during the morning. At noon, twenty-six hours after operation, five ounces of urine were passed. This contained large traces of acetone and diacetic acid.

The child had not responded well to stimulation by strychnine given subcutaneously. A pint of salt solution was then given intravenously, after which the child became more quiet, though the pulse did not improve. Thirty hours after operation the child began to be delirious. The pulse became scarcely perceptible at the wrist. Attempt to move the bowels by enemata and catharties were without avail, except for one small constipated movement.

Thirty-six hours after operation, twelve ounces of two-percent bicarbonate of soda solution was given intravenously, and also under each breast. Throughout this time there had been nausea, and occasional vomiting. Three hours later the child had an hour's sleep, and the pulse became more regular.

On the second morning after operation, the child became more dull and apathetic. She gradually lost consciousness. Coma came on. The odor of the breath became more and more marked as the condition became worse. The alæ nasi were working vigorously as though the child suffered from lack of air, and in the last few hours cyanosis was marked. The temperature after the operation remained about 102.

Autopsy, Nov. 19, 1903.

Body of female child, five and a half years of age. Well developed and nourished. No rigor mortis. No lividity. Pupils equal and normal, 3 mm. No edema. About 2 cm. subcutaneous fat.

Peritoneal cavity: No fluid nor adhesions. Serous membrane glistening and not congested. In mesentery of large intestine are numerous scattered small hemorrhagic points. Appendix is retrocecal, 7 cm. long. Mesenteric lymph nodes are not enlarged. Diaphragm at fifth rib or either side.

Pleural cavities negative. Pericardial cavity negative.

Heart: Fresh examination shows moderate amount of fat. Tissue is red, firm. Ventricles contracted, and the organ contains only a little fluid blood.

Lungs: Soft and crepitant. On section there is considerable white frothy exudation. The tissue is rich dark red, moist, crepitant everywhere. The bronchi are slightly injected. Bronchial lymph nodes are negative.

Spleen is firm and holds its shape well. Surface is dark red. The tissue is dark red, fairly firm, and only a moderate amount of pulp can be scraped off with the knife edge.

Gastro-intestinal tract shows nothing abnormal. The vessels are not congested. It contains little mucus, and a small amount of yellow feces. Pancreas is pale yellow and firm.

Liver: Surface smooth and pale yellow, and, in places, of reddish color. Stellate veins are in places well marked. Cut surface is pale yellow, oily and homogeneous. There are, in places, small, evenly distributed yellow areas corresponding with the centers of the lobules. The periphery of the lobules is pale red. The tissue is rather soft and friable. Fresh examination shows very marked fatty infiltration. Gall bladder moderately distended with brown bile.

Kidneys: Normal size. Capsule is thin and strips easily. Surface smooth and very pale yellow. In the section the lobulations are noticed, the cortex is very pale, yellowish, with some minute red points. The sub-cortical tissue is very dark red, and in marked contrast to the very pale red of the rest of the pyramids. Pelvis and ureters are normal. Fresh examination shows marked fatty infiltrations. Adrenals normal.

Bladder contains about 2 oz. of clear, straw-colored urine, which was drawn off in clean bottle with about 1 dr. of chloroform. Wall of bladder is negative.

Genital organs negative.

Aorta negative.

Organs of neck: Tachea and larynx are slightly congested. Thyroid normal. Thymus present, not large.

Brain: Calvarium thin, almost no diploe. Dura

only slightly adherent to bone. Slight congestion of meningeal vessels. No increase of fluid. Convolutions normal. Ventricles normal. Ependyma normal. Tissue not very moist.

Middle ears negative. Bone marrow red and soft.

Cultures from heart, spleen and liver were sterile. Cultures from kidney showed the colon bacillus.

DIAGNOSIS.

Microscopical description. — Heart negative. Lung and spleen show considerable acute congestion. Stomach negative. Small intestine shows many eosinophilic cells in the glandular epithelium. Pancreas negative.

Liver: Cystoplasm of liver cells is almost wholly replaced by vacuoles, both large and small, and what little there is stains poorly. The nuclei of the liver cells stain well. Many of the cells are phagocystic. Sections stained with Scharlach show very much fat.

Kidneys: The epithelium of the convoluted and descending tubules is swollen, vacuolated, and poorly stained. The nuclei stain well. Sections stained with Scharlach show considerable fat.

Sections of the thyroid, thymus, brain and pituitary body are negative.

Anatomical diagnosis. — Acetonuria. Very marked fatty infiltration of liver. Moderate fatty infiltration of heart and kidneys. Fatty degeneration of muscles of lower limbs.

CASE IV. M. S., a girl, aged eight years, of Boston, entered the Children's Hospital on Dec. 17, 1903. She had an extensive infantile paralysis of muscles of the right lower extremity, of seven years' standing. Otherwise, the child was in good physical condition. She entered at noon, was given dinner, and put to bed. In the afternoon she began to vomit, and continued to do so at intervals during the next forty-eight hours. On the evening of entrance the odor of acetone was detected in the breath. Next morning acetone and diacetic acid were present in the urine, the reaction being marked. The specific gravity was 1,020, sugar was absent; there was the slightest possible trace of albumin. During this time the patient had been restless, but on the second day after entrance, periods of stupor, from which the child could be easily roused, alternated with periods of restlessness, in which she cried out suddenly. A large part of the time she lay with her eyes open with a vacant stare.

Immediately after the onset of the vomiting nothing but hot water had been allowed by mouth. Enemata of salt solution and beef juice had been given every six hours. Peptonized milk and sodium bromide were later given by enema. Bicarbonate of soda was given in drachm doses every three hours from the day after entrance, at first by rectum, but after a week by mouth. The child slept nearly the entire third night, but on the following morning the vomiting began again and continued at intervals for the next three days, when it ceased entirely except for several times two days later. The vomitus was always watery and light green in color.

Aside from the facts mentioned, there were no other symptoms, and nothing abnormal could be found on physical examination. The abdomen was soft and not distended. The bowels moved freely. The temperature varied but little from 99. The pulse ranged about 100. The acetone and diacetic acid disappeared from the urine at the end of two weeks. The general condition had improved decidedly. Three weeks after entrance, the Achilles tendon was divided subcutaneously under local cocaine anesthesia, and a plaster bandage was applied. Ten days later this was changed under nitrous oxide anesthesia. The next day the over-corrected position of the foot caused considerable pain, but nothing else.

Twenty days later the child vomited again several times, and acetone again appeared in the urine, but only for a day. She was discharged well nine weeks after entrance.

CASE V. M. McL., a girl, aged six years, of Cambridge, entered the Children's Hospital on Dec. 17, 1903. When a year and a half old she had an attack of infantile paralysis, which had left her unable to walk. Except for fair power in the psoas and glutie, there was almost complete paralysis and atrophy of the muscles of both thighs and legs. The pulse was 110; the temperature 99. The urine was acid, specific gravity 1,025, free from albumin and sugar.

On the morning after entrance the child vomited once. The vomitus was watery, of light green color. Acetone and diacetic acid were not then present in the urine, but on the following morning both were present, and the child was very dull. There were no fever or other symptoms. Bicarbonate of soda was given in half-drachm doses every two hours. The condition slowly but steadily improved. After twelve days the acetone and diacetic acid disappeared from the urine. The bicarbonate of soda was continued during this time. After a few days the urine became alkaline. The after history was uneventful. Splints were fitted. The child was discharged five weeks later.

CASE VI. M. G., a girl, age four years, residence, Roxbury, was admitted to the Children's Hospital Dec. 26, 1903. Previous history was negative except for an attack two years ago. This illness lasted three days. The prominent features were absolute constipation for three days and vomiting. This was finally relieved by enemata.

Dec. 21, 1903, vomiting again began. Constipation had existed for some time previously. From Dec. 21 to Dec. 26 there was only one dejection. The vomiting occurred during this time frequently. Nothing, even water, was retained. Patient had become weak. Enemata had failed to relieve the condition of constipation. There was great thirst.

Dec. 26. On examination the patient was found to be weak. The face was somewhat haggard and anxious. Marked "acetone" odor to the breath. Abdomen somewhat distended and tympanitic; not especially tender. The physical examination was otherwise negative. Temperature 98.6. Pulse 140. The urine was clear, acid, specific gravity 1,024, albumin and sugar absent, acetone (marked) and diacetic acid present. Blood examination showed white count of 24,000.

Dec. 27. The vomiting has continued. Is now thin, light brown, foul smelling, *i. e.*, fecal in character. Patient has not been relieved by treatment, and attempts at feeding have failed. The abdomen is somewhat more distended and peristaltic movement of the intestine can be seen. The urine is clear, acid, 1,023, albumin 0, sugar 0, acetone (slight), diacetic acid. The patient was etherized, and the abdomen explored through a median incision by Dr. H. W. Cushing. A band formed by a Meckels diverticulum was found which extended from the ileum, in the vicinity of the cecum to the anterior abdominal wall, to the left of the median line near the umbilicus, completely obstructing the small intestine. This band was resected. One end was inverted into the ileum, which was closed over it by a "purse string" suture. The abdominal end was ligated close to the peritoneal attachment on the abdominal wall. The distal collapsed portion of the intestine immediately filled, and the obstruction was relieved. Examination of the rest of the intestine showed no other obstruction and

the abdominal wound was closed by sutures. The patient's condition at the end of the operation was quite serious and required free stimulation. That the "shock" was more pronounced, and the danger of the patient increased by the use of an anesthetic in the "acetonic" condition of the patient could not be definitely decided. There was good reason to expect marked shock in a case of this nature and duration, even had no anesthetic been used.

The patient reacted fairly well from the active stimulation, and during the afternoon and evening was quite bright. Temperature 100.4, pulse 150, fair quality.

Dec. 28. After 12.30 A.M. patient's condition became worse. Pulse was of poorer quality. There was gradually increasing stupor. No dejection. The abdomen rapidly became distended. At 9.45 A.M. (without anesthesia) the abdomen wound was opened, a loop of intestine found, and a rubber tube inserted for drainage, forming an artificial anus. Considerable liquid feces and gas drained off through this tube. The contents of the intestine had a marked acetone odor. The patient's condition became steadily worse. She was apparently unconscious, then comatose. The acetone odor in the breath increased. The pulse failed, and the patient died at 12.15 P.M. The urine (post-mortem specimen) showed a very marked reaction of acetone and diacetic acid. The temperature in this case was not especially elevated, while the pulse corresponded with the patient's general condition.

In this case two conditions existed: first, intestinal obstruction from mechanical cause; second, the "acetone" disturbance. This latter case indicated by the persistent vomiting, thirst, odor of breath, urine, stupor changing to coma without especial constitutional disturbance. The constipation, leucocytosis, abdominal distention, marked the condition of intestinal obstruction, which would cause the fecal character of the vomitus. The condition of the patient was quite serious immediately after the first operation, but after the reaction there seemed no reason why the patient should not recover, except for the disturbance from the acidosis; and it is probable that had not this existed the case would not have ended fatally.

CASE VII. T. D., a boy, aged seven years, of Melrose, entered the Children's Hospital on Jan. 2, 1904, with hip disease which had existed for nineteen months, but which had been very acute for only three weeks. An abscess had appeared. During the preceding two years there had been several attacks of diarrhea. The child also had measles and whooping cough and inflammation of the middle ear. Under rest and traction the acute symptoms about the hip subsided. The patient then got up and was walking about the ward with a Taylor hip splint. The pulse was 100; the temperature, 99. The urine was clear, acid, free from sugar, albumin and acetone and diacetic acid.

On Jan. 28, 1904, nearly four weeks after entrance, he vomited several times and was considerably prostrated. The characteristic odor of the breath was noticed. Acetone and diacetic acid were present for several days in the urine, which was rather high colored and had a specific gravity of 1,029. There were no further symptoms except a rise of temperature to 102.

CASE VIII. R. K., a boy, aged four years, of Boston, entered the Hospital on Jan. 27, 1904, for the radical cure of a left inguinal hernia. Aside from the hernia there was nothing noticeable in the history or physical examination. The boy was a Russian Jew, who neither spoke nor understood English, and apparently, as a result of homesickness, he cried almost constantly after entrance for several days. The urine was of normal color, acid, reaction, and free from albumin, sugar, bile pigment, acetone and diacetic acid. The urates were increased.

Two days after entrance, under ether anesthesia, a Bassini's operation was performed. The child recovered from ether well. Next day a sweet odor of the breath was noticed. Acetone and diacetic acid were present in the urine. There were no other symptoms except the constant crying and pulling off the dressings. There was no vomiting. After two days the acetone disappeared from the urine. While there was acetone in the urine the child was kept on a fat diet, and was given bicarbonate of soda by mouth. The child was discharged well in three weeks.

CASE IX. C. K., a girl, aged four years, of East Boston, entered the Hospital on Feb. 15, 1904. She had a congenital dislocation of both hips. On Sept. 4, 1903, a little over five months before, the right hip had been reduced by the Lorenz method. The etherization and convalescence were without incident. Since that time the right thigh had been kept in plaster. The plaster was removed. The skin was in fair condition. There were no excoriations. Otherwise the child was in good physical condition. The urine was acid, clear, and of slightly high color, free from sugar and albumin.

Three days after entrance, on Feb. 18, 1904, the child was etherized. In attempting by manipulation to change the right thigh from the first to the second position, the lower epyphysis of the femur was separated in spite of the fact that but little force was used.

An attempt was then made to reduce the dislocation on the left, when the same accident happened on that side. No further attempts at reduction were made. A double spica bandage of plaster was applied reaching to the toes. The child was under ether between a half and three quarters of an hour.

The child recovered from the ether as usual. There was but little nausea. In the evening the pulse was not strong; the rate had increased from 130, before the operation, to 150. The color was good and the skin warm. The child slept well. She had taken liquids. The bowels moved. She passed urine. There was absolutely nothing in any way unusual in the condition until six o'clock in the morning after the operation, an interval of twenty hours. The pulse at that time grew suddenly weak and rapid. The color became poor. A hypodermic injection of strychnine was given, and a few minutes later the color and pulse improved. The child seemed a little dull. There was no vomiting. The breath smelled sweet.

The condition improved, the color grew better, the pulse became stronger during the next three hours. There was another sudden relapse. The pulse became weak and rapid, the lips blue, the face looked drawn. Three ounces of urine were withdrawn by catheter. Acetone and diacetic acid were present. An enema of brandy, coffee and salt solution was given. The pulse improved a little. A half a drachm of bicarbonate of soda was given every three hours by mouth, and two drachms every three hours by rectum from this time on. During the day the child grew rapidly worse. She sank into a restless coma. The lips were very blue in spite of oxygen given freely. The drawn expression of the face increased, the eyes became sunken. She seemed to rally a little after the hot enemata were given. Considerable liquid was given

by mouth and retained, with the exception of vomiting a little milk once and a dose of soda once.

At 6 P.M. an injection of salt solution was given under both pectorals. Marked improvement followed in the pulse and in the color, and the child came out of the coma. At that time the temperature was 104. Only an ounce and a half of urine was obtained with the catheter. Hot poultices were applied over the kidneys. Urine was passed naturally at midnight and at 2 A.M.

At 9.30 P.M. the child was able to recognize her mother. At midnight, however, the condition again grew suddenly worse. The pulse grew weaker and more rapid; the respiration became poor. The temperature rose to 106 at 3 A.M. The coma returned. Stimulation by digitalis and strychnine subcutaneously, and by oxygen were of no avail. The child died at 5.30 A.M., twenty-three hours after the first collapse, forty-three hours after the operation.

Autopsy, Feb. 20, 1904.

Well-developed and nourished girl of three and a half years. Skin translucent white with marked lividity of the back. Flesh of body and thighs quite flabby. Body length, 95.5 cm. Slight rigidity in hands and feet. Five hours post-mortem. The layer of subcutaneous fat in the abdominal wall is 2 cm. thick.

Peritoneal cavity: Omentum short and contains little fat. No adhesions or fluid. Peritoneal vessels not congested. Intestines are moderately filled with greenish fluid. Mesenteric lymph nodes are slightly enlarged. Appendix hangs into pelvis, 5 cm. long, with short mesentery. Diaphragm is at the fourth rib on the left, and third intercostal space on the right.

Pleural cavity negative. Pericardium negative.

Heart: Normal size, tissue pale, fairly firm. Ventricles contracted, blood dark and fluid. Fresh examination shows a small amount of fat in the tissue.

Lungs: Soft and crepitant except in very posterior parts where the tissue is darker red and moist.

Spleen: A little large, rather firm, dark red, and the cut surface is moderately pulpy. Malpighian corpuscles quite numerous and distinct.

Gastro-intestinal tract: Stomach is partly filled with greenish-yellow liquid. Vessels of mesentery are congested. Mucous membrane apparently normal. Intestines are not remarkable. Pancreas normal size, tissue firm and straw colored.

Liver: Quite large, very pale yellow with a pink color in places. Veins on the surface are well marked. The cut surface is pale yellow and the lobules are indistinctly marked. The knife edge scrapes up much fatty material. The tissue breaks easily on pressure.

Gall bladder distended with green bile.

Kidneys: A little large; capsule strips easily, leaving a smooth surface. Cortex is pale red and 4 mm. thick; pyramids dark red. Fresh examination shows considerable fat in the epithelium of the convoluted tubules. Adrenals negative. Genital organs negative. Bladder contains about 30 cc. cloudy urine.

Bone marrow bright red.

All the muscles of both thighs are small, soft and flabby, and pale yellow.

Organs of the neck, negative.

Brain: Vessels of meninges congested. Brain tissue firm, quite moist and apparently normal. Moderate amount of fluid in the ventricles. Ependyma normal.

Anatomical diagnoses. — Extensive fatty infiltration of liver. Fatty infiltration of kidneys. Eosinophilia of gastric mucous membrane and spleen. Fatty degeneration of muscles of the thigh.

Cultures of heart's blood and spleen are sterile.

Bacillus of the colon group in liver and kidneys.

Microscopical examination. — Sections of the heart, lungs, pancreas, adrenals, ovary, thymus, thyroid, brain and pituitary body show nothing remarkable.

In the spleen there are some large phagocytic cells in the corpuscles, and there are numerous large cells, with generally one or two nuclei, which are filled with large eosinophile granules. Some of these are phagocytic.

In the epithelium of the peptic glands are many very large eosinophilic cells, in which there are numerour vacuoles and foreign bodies. In the small intestine these cells are very numerous, but there are few in the large intestine.

Liver: The nuclei of the liver cells are, in general, well stained, those of the connective tissue stain rather poorly. The liver cells are filled with vacuoles, which a section stained with Sharlach shows to be due to fat. Very little of the cytoplasm can be seen.

Kidneys: The epithelium of the convoluted tubules is broken down, stains poorly and is filled with vacuoles of fat droplets. The nuclei stain well. In the long tubules this is less marked.

In the bone marrow are numerous eosinophilic cells.

CASE X. R. H., a boy, aged six years, of Quincy, entered the Children's Hospital on Feb. 16, 1904. He had begun to walk at fifteen months. About the end of his second year it was noticed that he was lame, and as time went on he fell more and more frequently. When trying to rise he climbed up his own legs, grasping first an ankle, then by great effort a knee, and finally straightening up. Five months before entrance he recovered from pneumonia which came on after measles and whooping cough. Since then he had been unable to rise alone, although he could still walk when on his feet. During the three months before entrance his feet began to turn under him. He had been treated in the Out-Patient Department for sixteen months by massage.

On entrance he was only in fair physical condition. There was slight mental impairment. The expression was vacant; he was a mouth breather. The chest and abdomen showed nothing abnormal. The pulse was 100; the temperature 99; the respiration was 25. The muscles of the arm and shoulder girdles were much atrophied and weakened. The atrophy of the leg muscles was less marked. The feet were held in slight position of equino-varus. The gait was waddling and unsteady. The grip of the hands was weak. There were athetoid movements of the hands. The urine was acid with specific gravity of 1,018 to 1,028, and was free from albumin, sugar, acetone and diacetic acid and bile.

Three days after entrance, under ether anesthesia, both Achilles tendons were cut subcutaneously, and the feet were put in an over-corrected position in plaster-of-Paris bandages. Next day the child was comfortable and in no pain. The recovery from ether had been normal. Two days after the tenotomy the pulse was noticed to have jumped to 142, and the child seemed a little dull, with periods of restlessness. There was no pain, no nausea. The temperature and respiration were not altered. The sweet odor of the breath led to another test for acetone in the urine. It was found to be absent. Next day the child seemed to be better. The pulse dropped again to 100 within three days. Six days after operation the child was discharged to the Out-Patient Department without any unfavorable symptoms.

CASE XI. M.D., a girl, aged nine years, of Lowell, was admitted to the Children's Hospital on Feb. 18, 1904. She had been through measles and chicken-pox. She entered because of a valgus deformity of the foot, following an operation five years before for the correction of a congenital equino-varus. She was well

developed and fairly well nourished. Nothing abnormal was found on physical examination except the extreme valgus deformity of the right foot. The urine was acid, specific gravity 1,024 and free from albumin, sugar, bile, and acetone and diacetic acid. The temperature was 99; the pulse 100.

Two days after entrance the child vomited several times; complained that she felt sick, and seemed dull. The breath was sweet. Acetone was found in the urine.

She was at once put upon bicarbonate of soda, and given a diet as free from fat as possible. For the succeeding three days there was no acetone or diacetic acid in the urine. The child grew bright again. The vomiting ceased.

On the next day, the sixth after entrance, both acetone and diacetic acid again appeared in the urine, but there were no unusual symptoms.

Twelve days after entrance under ether anesthesia a complicated plastic operation on the foot was performed, and the limb part put up in plaster-of-Paris bandage. Considerable pain followed the operation, but there were no unusual symptoms and there was no reappearance of acetone or diacetic acid in the urine.

About three weeks later the child was discharged to the Out-Patient Department.

CASE XII. M. L., a boy, five years old, of Boston, entered the Children's Hospital on Feb. 23, 1904.

The child had been knock-kneed ever since coming to this country from Italy four years ago.

He was fairly well developed and nourished. There were a few râles in the back of both sides of the chest; otherwise the lungs and heart were normal. The abdomen was distended and tympatic. The rosary and the epiphyseal enlargements at the wrist and ankles were marked. There was a very prominent knock-knee due to a curve in the upper left tibia. The urine was normal in color, specific gravity 1,012, sugar, albumin, acetone and diacetic acid absent.

On the first two days after entrance the child vomited several times. The odor of the breath was sweet. The child complained of the throat and cried constantly. There was no collapse and no stupor. The temperature was elevated to 101 on the second evening, but at only one other time did it rise above 99.5. The urine showed both acetone and diacetic acid. This lasted for three days. There was no albumin or sugar at any time. The urine was acid except on one day after the soda had been given. The child was put on a fat free diet and given bicarbonate of soda.

The vomiting ceased in two days. There were no other unusual symptoms.

Twelve days later a Macewen's osteotomy of the femur was done, and the leg was put in a plaster-of-Paris spical bandage. The child was very noisy in coming out from ether. This was controlled by morphine. There was no recurrence of the acetone in the urine. Three weeks after the operation the bandage was renewed, and the child discharged to the Out-Patient Department.

CASE XIII. W. J., a boy, aged four years, of Roxbury, entered the Children's Hospital on Feb. 24, 1904, for the correction of double knock-knee. Three years before the child had chicken-pox and pertussis. Two years before had measles. He was markedly rachitic, but otherwise was in fair condition. Rosary and epiphyseal enlargements at the wrists and ankles were marked. The abdomen was distended and tympanitic. There was knock-knee on each side with forward and outward bowing of the tibia and femur. There was a coxa vara on the left. The heart and lungs were normal. The pulse was 90; the temperature 99, and respiration 30. The urine was acid, 1,026, normal in color and free from albumin, sugar, acetone and diacetic acid.

Two days after entrance a Macewen's osteotomy of both femora was done under ether anesthesia, and the legs were put in a plaster-of-Paris bandage from the toes to the umbilicus. The child recovered normally from the operation. Next day the odor of the breath led to the examination of the urine again. Both acetone and diacetic acid were present. There was no sugar or albumin. There was no rise of temperature. Within two days both the acetone and diacetic acid had disappeared. There were no other unusual symptoms at any time. The child was discharged three weeks later, still in plaster bandages, but with the legs in improved position and with good callus.

CASE XIV. E. P., a girl, aged three years, of Dorchester, entered the Children's Hospital on Feb. 27, 1904.

A year before she had pertussis. She came in because of pleuritic effusion following measles. She was well developed and nourished. The right chest was hyperresonant, but except for some moist râles in the lower back, the respiratory sounds were normal. The heart sounds were heard more plainly on the right than on the left.

On the left the intercostal spaces were bulging. The respiratory excursion was diminished. Respiratory and voice sounds and tactile fremitus were diminished except that there was bronchial breathing above the fourth rib. There was dullness in both back and front to the apex. The abdomen showed nothing abnormal. The temperature was 99.6; the pulse 122; the respiration 33.

The left chest was at once tapped and eight ounces of slightly cloudy, straw-colored serum were withdrawn. On account of coughing the needle was then removed. Next day she was transferred to the medical side. Afterwards two ounces more were withdrawn by a second aspiration. It was then found that there were signs of consolidation in the left apex, — dullness, broncho-vesicular breathing and numerous medium moist râles.

On the day after the tapping, the urine showed the presence of acetone though the reaction was not marked. There was no vomiting, no stupor, nor other unusual symptoms. She was given a diet without fat and was given cream of tartar and phosphate of soda, two drachms every four hours. The child was discharged from the hospital relieved, but still with dullness at the left apex two weeks after entrance.

Child showed no unfavorable signs or symptoms after aspiration of chest, no odor to breath noticed. The condition of acetone in urine would have been entirely overlooked except that in the course of routine examinations at that time acetone was found and in such small quantities that violet color not seen, or overlooked in foam, but urine gave a distinct violet reaction when dried on paper. This condition lasted through Feb. 29 (three days after entrance). Urine of March 1 showed not even the reaction on paper.

BIBLIOGRAPHY.

Baginsky: Arch. f. kinderheilkund, 1888, 9, 1.
Becker: Deut. Med. Woch., 1894, 16, 18; also Virchow's Arch., Vol. cxl, p. 1.
Bernert: Zeitschr. f. Heilk., Bd. III, Heft. 2.
Blumenthal and Neuberg: Deutsche med. Woch., Bd. xxvii.
Brewer: Annals of Surgery, October, 1902.
Edsall: Am. Jour. Med. Sciences, April, 1903.
Frerichs: Deutsche Arch. f. klin. Med., Bd. xiv.
Gelmuyden: Zeitschr. f. Phy. Chemie, Bd. xxiii.
Guthrie: Lancet, July 4, 1903.
Herter: Chemical Pathology, New York, 1902.
von Jacksch: Zeitschr. f. klin. Med., Bd. viii.

von Jacksch: Ueber Acetonurie and Diaceturie, Berlin, 1895.
Joslin: Jour. Med. Research, 1904.
Juffinger: Wein. Klin. Woch. schr., 1888, 1, 367.
Kaulisch: Prager Vierteljahrsschr., 1857, Bd. xiv.
Kraus: Alleg. Path. Lubarsch. and Ostertag., Heft 2, 1895.
Kussmaul: Zeitschr. f. klin. Med., Bd. vi.
Lane: Lancet, Jan. 27 and Feb. 17, 1894.
Lorenz: Zeitschr. f. klin. med., Bd. viii.
Lorenz: Zeitschr. f. klin. med., 1891, Vol. xix.
Magnus and Levy: Arch. f. exper. Path. and Phar., Bd. xlii.
Marfan, Grancher, and Comby: Arch. de Med. des Enf., Vol. iv, No. 11.
Müller, F.: Virchow's Arch., Bd. 131, Supplament.
Müller, J.: Arch. f. Exp. Path. and Pharm., Bd. xl.
von Noorden: Auto-intoxication, 1903.
Offer: Zeitschr. f. innere Med., 1903, s. 245.
Petters: Quoted by Kraus.
Rosenfeld: Zeitschr. f. klin. Med., 1895, Bd., xxviii, s. 256.
Satta: Quoted by von Noorden.
Schwarz: Deutsche Arch. f. klin. Med., Bd. lxxvi.
Stadelmann and Minkowski: Arch. f. klin. Med., Bd. xviii.
Taylor: Am. Jour. Med. Soc., No. 107, p. 569.
Taylor: Jour. of Exp. Med., 1899, p. 399.
Waldvogal: Centralb. f. innere Med., July 15, 1899.
Waldvogal: Zeitschr. f. klin. Med., 1903, Bd. xlii.
Wollstein: Am. Jour. Med. Soc., May, 1902.

Reports of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

TWENTY-NINTH ANNUAL MEETING, HELD IN BOSTON, MASS., MAY 24, 25 AND 26, 1904.

FIRST DAY.

THE Society met in the Boston Medical Library, under the presidency of DR. EDWARD REYNOLDS of Boston.

An address of welcome was delivered by DR. CHARLES M. GREEN of Boston, which was responded to by DR. HENRY T. BYFORD of Chicago.

THE TREATMENT OF GALLSTONES FOUND AS A COINCIDENCE IN ABDOMINAL OR PELVIC OPERATIONS.

DR. JOHN G. CLARK of Philadelphia stated that among the unsettled questions in abdominal surgery, the treatment of gallstones found as a coincidence in abdominal or pelvic operations might be considered a debatable one. He followed the plan at present of removing gallstones which were found in the course of another operation, if the patient's condition permitted of this extra operation. Although it was stated that 95% of gallstones produced no symptoms, he believed that this statement should not be applied to cases as one met with them at the time of an operation. In his review of recent literature he had been especially impressed with the fact that knowledge of the early stages of cholelithiasis was very indefinite, and that many cases which came to operation for more or less urgent symptoms did not have the clinical symptoms of colic and jaundice, as usually taught in medical schools. In view of this hiatus in the early history of this disease, he believed that many symptoms now attributed to gastralgia, indigestion, functional disturbances of the gastro-intestinal tract, etc., would, as knowledge increased, be ascribed to the presence of gallstones with associated infection, which was so frequently found in cholelithiasis.

In referring to the etiology of gallstones, he said that three facts had been prominently established: (1) That the bile was not bactericidal; (2) that the micro-organisms in the gall bladder were predisposing, if not absolute, causative factors in the formation of gallstones; (3) when gallstones were present in the gall bladder, infection in that viscus was much more likely to take place.

He mentioned three general avenues through which nfection might enter the gall bladder: (1) From bacteria circulating in the general blood stream and reaching the liver through the hepatic veins; (2) by the direct passage of bacteria into the common bile duct from the duodenum; (3) by the transportation of bacteria from the intestine through the portal circulation.

He then recurred to the frequently quoted statement that 95% of gallstones did not produce symptoms, and showed from his own series of cases that in at least 50% there were varying symptoms from undoubted attacks of colic and jaundice to less pronounced gastro-intestinal symptoms. To justify operative intervention in cases which were not producing well-defined symptoms, the mortality and morbidity should be a very low one. In his own experience no death had occurred, nor had there been any serious complication referable to the secondary operation. In lieu of the fact that the additional operation did not seriously jeopardize the life of the patient, and also because he had seen two patients die from cholelithiasis a year or more subsequent to an abdominal operation, in which, had the routine exploration been made, the gallstones might have been easily removed, he believed that the best interests of the patient would be conserved if the gallstones were removed as a secondary part of another operation, in the event of their being found. He appended the history of twelve cases to his paper, in which the various operative points, as well as the significant facts in symptomatology, were elaborated.

DR. R. STANSBURY SUTTON of Pittsburg said that gallstones did not always produce symptoms which demanded or justified resort to operation. If they were encountered during the course of another operation, they had better be removed. There was a remedy, however, which obviated the necessity, in some instances, of surgical intervention, namely, kolalin. He had used kolalin in dozens of cases in which he had held operation in abeyance, and did not have to operate subsequently.

DR. GEORGE M. EDEBOHLS of New York had occasion at one time to operate on a woman who presented marked dyspeptic symptoms. In addition she had movable kidney, chronic appendicitis, and induration in the region of the gall bladder. He anchored the kidney, removed the appendix through a lumbar incision, pulled the gall bladder into the lumbar wound, and found the stone about four or five centimeters in length, pear-shaped, and nearly filling the gall bladder. The attending physician was positive that the gall bladder did not produce symptoms of stone in it. He would not let him remove the stone from the gall bladder. A year later he opened the woman's abdomen for some other condition, making an incision near the gall bladder. He investigated the gall bladder, found it was perfectly healthy, and that the large stone had either passed or had been dissolved. The treatment after the previous operation consisted of the use of olive oil for about a month, and whether this had anything to do with the passage of the stone, he did not know. At any rate, the stone had disappeared and had left no trace of its former existence.

DR. A. PALMER DUDLEY of New York emphasized the importance of looking beyond the gall bladder for trouble. He believed that stones were formed in the liver ducts themselves, and that from a stagnant circulation cholesterin nuclei formed, and that only a small proportion of stones were found in the gall bladder. He would not hesitate to go into the center of the liver. In fact, in the last case he had, in which the diagnosis of gallstones had been made by a medical confrère, he boldly went into the gall bladder, but found no stone. He found the duct dilated; he went

five inches into the right lobe of the liver, as far as he could reach with his finger, and packed the liver full with iodoform gauze, put an apron of gauze over it, and the patient was well to-day. He would explore the center of the liver in searching for such deposits.

DR. BROOKS H. WELLS of New York said that in the last few years he had used practically the same measures as those outlined by the essayist. A number of patients coming under his observation had complained of obscure symptoms of so-called functional indigestion. In them he found either disease of the gall bladder, an over-distended gall bladder from obstruction elsewhere, or trouble referable to gallstones. By making a small or large incision, as seemed necessary, cleaning out the gall bladder and draining it, the patients had obtained remarkable relief from the symptoms that were supposed to be due to functional indigestion.

DR. SETH C. GORDON of Portland, Me., said that when the abdominal cavity was opened for other purposes, and he was quite sure the patient could stand it, he would examine the gall bladder thoroughly, and if gallstones were found, he would remove them. He cited cases in support of this line of reasoning.

DR. HIRAM N. VINEBERG of New York said that under the influence of the teaching of Kelly he had been in the habit of doing what had been advocated by the essayist, but after hearing a discussion on gallstones in the common duct and in the gall bladder by one of the Mayos, he had changed his method. Simply opening the gall bladder and removing the stones did not effect a cure, as proven by three or four cases that occurred in his own practice. If the gall bladder was diseased, however, it should be removed.

DR. J. M. BALDY of Philadelphia said that gallstones existed in the gall bladder for years without causing any material discomfort, but that when infection occurred they were liable to give trouble. There was not the slightest question but that large numbers of cases of so-called stomach trouble or chronic indigestion sooner or later proved to be cases of gallstones or of gall bladder disease. With reference to removing gallstones when operating for some other intra-abdominal condition, the surgeon should consider the physical condition of the patient, the surroundings, etc., and as to whether the patient was willing to undergo the additional risk of a second incision for the gall bladder operation.

DR. WALTER P. MANTON of Detroit quoted Ochsner as saying that he had tried almost everything in the so-called cases of chronic dyspepsia without affording relief; yet after opening their gall bladders and removing gallstones which were found, the patients were cured. Dr. Manton had seen a number of such cases, and contended that the removal of gallstones, or the gall bladder, if diseased, was the thing to do. He did not believe there was any solvent ever invented which would dissolve gallstones.

DR. BEVERLY MACMONAGLE of San Francisco, Cal., stated that when the abdomen was opened for some pelvic or abdominal trouble, the operator should investigate the gall bladder. If gallstones had been making the patient ill, causing dyspepsia, or if there were adhesions around the gall bladder, one should operate. The conditions that arose in the pancreas as a consequence of gall bladder disease and of gallstones were serious, and if the surgeon could do something of a prophylactic nature, without adding to the risk of the patient's life, it was a wise thing to do.

DR. CLARK, in closing, said the formation of gallstones through bacteria had been clearly demonstrated by a series of experiments. He did not believe anyone would strongly advocate operation unless the gallstones were producing symptoms.

OVARIAN PREGNANCY.

DR. J. CLARENCE WEBSTER of Chicago reported a case of ovarian pregnancy. There was a right ovarian, irregularly-rounded swelling, measuring 7 by 8 cm. There was no evidence of rupture into the peritoneal cavity. The adhesions were recent. Sections of the ovarian swelling consisted mainly of extravasated blood and disseminated fragments of the chorion. No evidence of transformation of ovarian connective tissue into decidua was noted. It was certain that the pregnancy did not start in a Graafian follicle.

DR. J. WHITRIDGE WILLIAMS of Baltimore said there was no doubt that ovarian pregnancy occurred, but it was the rarest of all forms of extra-uterine pregnancy. In regard to the Muellerian origin of ovarian pregnancy, he was not quite convinced of it. While there was no doubt that Muellerian tissue might be found in the ovary, as mentioned by the essayist and confirmed by numerous observers, he thought it was going too far to advance that view in explanation of every case of ovarian pregnancy.

DR. JOHN T. THOMPSON of Portland, Me., referred to a case of ovarian pregnancy he had reported at a previous meeting of the society. He called attention to the nature of the structures in which pregnancy occurred, and to the frequency with which rupture might occur in the early days.

DR. EDWARD P. DAVIS of Philadelphia removed an ovarian pregnancy about a year ago, the histology of which had not been completely worked up as yet, although a diagnosis was made very early of the nature of the tumor from the enlarged ovary. The indications were that the pregnancy did not originate in the Graafian follicle.

DR. LAPTHORNE SMITH of Montreal had diagnosed ectopic pregnancy by the clinical symptoms; had operated, and found hematoma of the ovary. He had said to his students that he was sorry that his diagnosis was wrong, because authorities maintained that there was no such thing as ovarian pregnancy, but after hearing what had been said, he was convinced there was.

URETERO-LITHOTOMY.

DR. J. WESLEY BOVEE of Washington, D. C., in a paper on this subject, gave the history of the operation, and then discussed the size and number of calculi. The routes for reaching and extracting ureteral calculi, he said, were the transperitoneal and the extraperitoneal. The latter might be subdivided into loin, inguinal, vaginal, rectal, sacral, perineal, and transvesical. The transperitoneal route should never be the one of election, as the danger of peritoneal infection from the urine was too great. Of the extraperitoneal routes, the selection would depend largely upon the location of the calculus or calculi, although the operation of Ceci, of removing it through the rectum, should only be considered justifiable when the stone had practically sloughed through into the rectum. In a class of cases characterized by the stone having been lodged in the intravesical portion of the duct and later sloughed into a pocket in the bladder wall, which it had made for itself, the vaginal and inguinal routes were the only safe ones, although in so stating he was not unmindful of the number of cases in which suprapubic cystotomy had been done. He discussed the removal of the calculus from the ureter, and the methods for so doing; also the treatment of the ureteral opening.

Speaking of drainage, he stated that all ureterolithotomy wounds should be drained. This was because the urine was practically never normal, therefore rendering wound infection probable. The possibility of urinary leakage subsequent to operation afforded another positive indication for drainage.

NEPHRECTOMY FOR PRIMARY TUBERCULOSIS OF THE KIDNEY.

DR. HIRAM N. VINEBERG of New York read a paper on this subject. Tuberculosis of the kidney, both primary and secondary, was more frequently met with in women than in men, in the proportion of about two to one. It was different from what occurred in men; renal tuberculosis in women was rarely associated with tuberculosis of the genital organs. A cystitis in women that resisted the topical applications of the silver nitrate solution by the Kelly method should be looked upon with marked suspicion as being of tuberculous character, even though repeated examinations of the urine should show an absence of the tubercle bacillus. The differential diagnosis of a non-tubercular from a tubercular cystitis with the aid of a cystoscope was not as reliable as the therapeutic test outlined in the preceding sentence. Pronounced reddening or ulceration about the mouth of one of the ureters, with absence of other bladder changes, was held by some authorities as pathognomonic of tuberculosis of the corresponding kidney; while the sign was an important one, too much weight should not be attached to it in women. In most cases, the removal of the diseased kidney would bring about practically a cure of the descending cystitis. He doubted the wisdom of the advice to cure the cystitis before undertaking the removal of the kidney. In women, owing to the fact that the disease was most frequently primary and unilateral, the modern tests for determining the functional capacity of the second kidney were not so essential as in men. Catheterization of the supposedly healthy kidney was a procedure to be avoided, when, as was frequently the case, there was associated a tuberculosis of the bladder. The prognosis of nephrectomy in renal tuberculosis in women was exceedingly good. Of the writer's four cases operated upon, seven, five, two, and one and a half years ago, respectively, all were alive and in good health.

DR. JOSEPH E. JANVRIN of New York reported a case of a woman who had been ailing for two years with what was supposed to be a renal calculus. Before operating, Dr. Willy Meyer examined the woman, and agreed with him that the case was probably one of calculus in the pelvis of the kidney, with possibly calculi in the ureter. The kidney was removed, and it was found that its pelvis was infiltrated with tubercular deposits in the very early stage. The patient made a good recovery and was well to-day.

DR. J. WESLEY BOVEE said that if one read the proceedings of the late meeting of the German Congress, one would be impressed with the comparatively large proportion of cases in which primary tuberculosis was found in both kidneys, or the very small proportion in which one kidney alone was involved. As to the indications for operation, on tuberculous kidney, the surgeon should be sure that the opposite kidney was capable of carrying on the function of excreting urine for the whole body before he decided to remove one tuberculous kidney. A nephrotomy might be done, and the kidney most markedly diseased drained, without taxing the other kidney to a great extent. As regards cystitis in tuberculosis of the kidney, it was a late, not an early, symptom.

DR. PHILANDER A. HARRIS of Paterson, N. J., said that in cases of tuberculosis of the kidney it was difficult, where the bladder was corrugated and changed by the process present, to find the ureter; but by painting the entire field of the bladder with some solution sufficiently colored, with a swab, as Prussian blue, he had succeeded in finding the ureters, in the case of a girl, which he could not otherwise locate.

DR. SETH C. GORDON operated on a man, removing a kidney which was situated low down in the abdomen, painful, and bound down by adhesions. The patient died eleven days after the operation, and post-mortem examination showed that the man had no other kidney. Two years afterwards he removed a very large kidney from a woman, who lived twenty-eight days after operation. For twelve hours she did not have a single uremic symptom, nor was a drop of urine secreted, and she died in full possession of her faculties. Post-mortem examination revealed that she had no other kidney.

DR. J. M. BALDY said it was not uncommon to have medical men in the wards of the policlinic ask if the ureters had been catheterized in the cases of supposed kidney disease, and not infrequently a perfectly healthy kidney was palpated and found on one side, which utterly failed to secrete, with the patient under an anesthetic or without it. In some instances, this failure on the part of the kidney to secrete was undoubtedly brought about by the influence of the anesthetic. At any rate, anesthesia would reduce the quantity of secretion very materially. He had had exactly that same experience a number of times in patients whose ureters he had catheterized, but to whom no anesthetic had been given.

DR. GEORGE M. EDEBOHLS said that some four or five years ago he read a paper on "The Other Kidney and Contemplated Nephrectomy." In it he advocated that before removing a kidney an incision should be made on the opposite side to determine by actual inspection and palpation, first, the presence of another kidney, and second, its probable health, so far as could be determined macroscopically, before removing the diseased kidney. In spite of the advance made in diagnosis, and its limitations in kidney diseases, he had adhered to that rule in all nephrectomies performed since that time, and in one case he had saved a woman's life by so doing.

DR. J. RIDDLE GOFFE of New York reported a case bearing on the removal of the ureter in connection with tuberculosis of the kidney, the patient having been operated on by him in 1896. She was a woman of twenty-two, who had a very large tuberculous abscess of the right kidney. He removed the kidney and three inches of the ureter. She made an excellent recovery, excepting that she had a sinus which lasted four months and then healed. Patient was now a graduate nurse and in perfect health.

DR. EDWARD REYNOLDS of Boston gave his experience of 10 nephrectomies for tubercular disease, 7 of them being complete nephro-ureterectomies, all successful, so far as operative mortality was concerned.

HYPERTROPHIES AND INFLAMMATIONS ABOUT THE URINARY MEATUS.

DR. ROBERT L. DICKINSON of Brooklyn read a paper on this subject, saying that their frequency and the suffering caused gave them an importance out of all proportion to their minute size. Overlooked because hidden among folds of mucous membrane. They were explained by embryology. A tiny ribbon ran from the rear of the vaginal opening forward, on each side of the vaginal and urethral openings across the vestibule, to disappear beneath the clitoris. This fold was persistent in those cases where the hymen ran forward of the meatus, or the meatus seemed to open

on the anterior vaginal wall. This fold was enlarged by friction or traction to produce flaps or labia, hanging out each side of the meatus. They were found only with corrugated labia. Dilated or dilatable urethra often accompanied them. The urethral glands opened near the apex of the flaps. They were long, running down into the anterior column of the vagina. Swelling from infection differed from hypertrophy. The cure of chronic inflammation was only feasible by obliteration of the glands. A fine probe passed to the bottom of the gland rendered the vestibular-vaginal surface tense; the cautery wire cut out the probe. For piles of the meatus, the cautery wire was used after cocaine; for prolapse or dilatation of the urethra, resection of the anterior vaginal wall or paraffin injections into the urethro-vaginal septum produced a sigmoid profile.

(To be continued.)

AMERICAN MEDICAL ASSOCIATION. SECTION ON PRACTICE OF MEDICINE.

(Concluded from No. 26, p. 710.)

THIRD DAY. THURSDAY, JUNE 9. — (Continued.)

THE PATHOGENESIS OF UREA AND ECLAMPSIA.

DR. ROBERT N. WILLSON, of Philadelphia, presented this paper and offered the following conclusions: (1) That it is probable that there are at work in the cerebrum as well as throughout the system of uremia subjects, at least one, and probably several, toxic substances, which exert their influence more or less locally upon the cortex. (2) That it is equally certain that other portions of the brain than the cortex are also acted upon, as in the production of coma, etc. (3) That no small part in the production of the uremic and eclamptic condition is played by intracranial pressure, due to a temporary excess of fluid, whether acting independently of, or in conjunction with, the toxic substances already mentioned. (4) That lumbar puncture will at least temporarily relieve certain of the symptoms most readily ascribed to localized intracranial pressure; and that cases in which pressure is the main factor, drainage of the spinal canal may save life. The procedure, together with free bleeding, purging and diuresis, should be added to our routine treatment of the condition. (5) That transfusion of normal salt solution by intravenous injection or hypodermoclysis except in cases of anuria, or a greatly diminished urinary secretion, is contra-indicated, as tending to increase the liability to saturation of the tissues. (6) That the results of lumbar puncture in the three cases cited in the paper would not warrant the assumption that relief of intraspinal or intracranial pressure could alone be depended upon to cure the uremic or eclamptic condition, provided the toxic influences were prominent.

DR. JAMES TYSON, of Philadelphia, thought that we must consider some toxic agency responsible for the phenomena.

DR. ALEXANDER LAMBERT, of New York, said that in eclampsia the lesions noted were often identical with those of acute yellow atrophy of the liver.

DR. ROBERT N. WILLSON, of Philadelphia, emphasized the fact that when bloody fluid was withdrawn by lumbar puncture, the cases terminated fatally, whereas if clear fluid was obtained patients could recover.

AMEBIC DYSENTERY: ITS LOCAL LESIONS AND TREATMENT.

DR. JAMES P. TUTTLE, of New York, read this paper. His paper was based upon personal experiences of seventy-four cases of amebic dysentery, together with what he had gained from literature. The cause of the disease was the infection or invasion of the colon by amebæ dysenteriæ. At about the temperature of the body the life of the amebæ was indefinite, but if the temperature got below 70° F. the motility and life of the amebæ became extinct and no amount of heat would restore the same. He said the whole treatment should be directed toward the local lesions, the destruction of the amebæ and the prevention of a redevelopment from the spores, and as these were buried in the tissues it was evident that superficial washing or flushing of the intestinal canal would not destroy them. It is found that simple cold water served every purpose in destroying the amebæ. The patient was placed in the knee-chest posture, and the bag or fountain was elevated not more than three feet above the level of the hips and the fluid was allowed to run in slowly, the amount of water used being limited only by the tolerance of the patient. Local ulcers of the rectum and sigmoid were treated by local measures. Recognizing the fact that the appendix might be the seat of amebic infection he said it would be wise to remove this organ in those cases in which the appendix was utilized, to introduce the cold water into the large intestine. In seventy-three cases treated by this method cures resulted in seventy cases.

DR. FENTON TURCK, of Chicago, called attention to the futile attempts to destroy the amebæ, for it had been his experience that the various solutions had little, if any, effect upon them. He referred to the use of oil which acted as a powerful irritant and which excited peristaltic hyperemia and which had more or less effect upon the plasmodiums. It was his plan to use hot water, starting with a temperature of 115° F. and gradually raising it to 131°. After every treatment the amebæ disappeared. This then was followed by the use of ice water, and the results he obtained were far better than if he had used the ice water alone.

DR. A. W. WARDEN, of Union Hill, Weehawken, referred to the beneficial results that he has obtained from the use of chaparro or nargosa.

THE FAMILY PHYSICIAN AS A FACTOR IN THE SOLUTION OF THE TUBERCULOSIS PROBLEM.

DR. S. A. KNOPF, of New York, read this paper, and after referring to the conception of the family physician, said that he should be carefully trained in the early recognition of pulmonary tuberculosis and should make calls at regular intervals, whether the family was ill or not. The importance of periodic examination of the chest of each member of the family was dwelt upon, and the inauguration of necessary preventive measures at slightest indication of predisposition to tuberculosis. He appealed for more sanatoria, more special hospitals, better tenement buildings, etc., all of which were of such value in the eradication of this disease, particularly before another generation had passed. The family physician should not only be the medical adviser, but also the friend of the family, and it was the family physician and friend more than any other person who would be able to prevent the marriage of a consumptive or between consumptives.

HAS INFLUENZA BEEN A CAUSATIVE FACTOR IN THE INCREASE OF APPENDICITIS?

DR. PHILLIP MARVEL, of Atlantic City, referred briefly to both influenza and appendicitis, and gave a statistical review of the periods from 1884 to 1894 and from 1894 to 1904 as copied from the Episcopal Hospital and from the Pennsylvania Hospital. Com-

parison of these periods showed a great percentage increase of appendicitis in the latter period, and also the greater increase over all of the more important pelvic and abdominal inflammatory diseases reported in the former period. The rapid increase was not satisfactorily explained through our better knowledge of diseases. He made certain suggestions and abstracts, and said that whether they would enable us to arrive at fixed conclusions did not affect the following deductions: (1) That appendicitis had increased in the past five years much more rapidly than in either of the previous five-year periods studied. (2) That the accessory cavities are more frequently attacked, and when diseased, more likely to be aggravated by influenza than by other diseases. (3) That there is more than a possibility of the existence of chronic interstitial influenza, therefore a probability of its causative relation to appendicitis. (4) That the observations as set forth in the abstracts referred to must be admitted as a measure of proof in favor of the inferences drawn and the conclusion arrived at.

FOURTH DAY, FRIDAY, JUNE 10.

ANEURISM OF THE INNOMINATE ARTERY.

DR. ALBERT P. FRANCINE, of Philadelphia, read this paper, and in conclusion he said that a delayed and weakened beat in the right radial, absence of pulsation in the right temporal, a turgid external jugular, in association with paroxysmal attacks of dyspnea and pain at the root of the neck, or referred to the right side, were very suggestive of innominate aneurism. But the two signs to which the writer would like to call especial attention and which had not, so far as he was aware, been before described in this connection, were the regurgitant quality in the right radial pulse, and even more convincing are the signs of aneurism in the supersternal notch behind and above the right sterno-clavicular articulation in association with a distinctive angle of re-entry in the second interspace. Unless relieved by operation, these aneurisms sooner or later would rupture. The operation consisted in distal ligation of the right common carotid and subclavian, one or both, either consecutively or if necessary at the same time. In uncomplicated cases it had proved highly successful, the sac becoming obliterated by organized clot.

SYMPOSIUM ON ARTHRITIS DEFORMANS.

PATHOLOGY AND ETIOLOGY OF ARTHRITIS DEFORMANS.

DR. THOMAS MCCRAE, of Baltimore, read this paper and offered these conclusions: The uncertain state of our knowledge of arthritis deformans was dwelt on, and the importance of determining whether or not we had one or more diseases included under the term. The anatomical distinctions between the two types were described, but the view was expressed that these were varying manifestations of the same disease. This seemed to be supported by their occurrence in the same patient. The various theories as to etiology were gone over and the possibility of an infection being the cause was favored. There was as yet no positive evidence of a specific infection as against the possible casual agency of various ones.

SYMPTOMATOLOGY OF ARTHRITIS DEFORMANS.

DR. JAMES J. WALSH, of New York City, read this paper. He said that uric acid had nothing to do with rheumatic conditions. Rheumatic gout had disappeared, and there was no middle term between the two. Chronic rheumatism was vanishing. Arthritis deformans could be traced in history at nearly all times. The bones of bodies buried probably fifty-five hundred years ago show in certain cases the signs of the changes in arthritis deformans. Certain English authorities divided arthritis deformans into three groups as follows: (1) The disease commonly known as osteo-arthritis, often confined to the hip-joint and most common in old men. (2) A disease in milder form and often not recognized, most common in women in middle life and represented by deformities occurring in the terminal joints of the fingers. The deformity becomes considerable and ultimately due to bony outgrowth. (3) This form was one simulating ordinary acute rheumatism and produced lasting changes in the joints and had a certain tendency to recur, and ultimately made the victim hopeless and a pitiable cripple. It occurred more commonly in young women. Perhaps the most characteristic of the differential diagnostic symptoms was that the salicylates failed to reduce the fever very materially and failed to lessen the pain and discomfort. One of the most important features of this affection was its tendency to recur.

THE TREATMENT OF ARTHRITIS DEFORMANS.

DR. CLARENCE EDWARD SKINNER, of New Haven, Conn., said that what had given him the most satisfaction as a routine treatment, to be modified according to the conditions surrounding the individual cases, was as follows: (1) A diet as generous as could be digested and assimilated by the individual case, and consisting largely of red meats. (2) Rest in bed for at least ten hours out of the twenty-four. (3) A pill consisting of 1-40 of a grain of strychnia sulphate and 1½ grains of ferrous iodide three times daily, half an hour before meals, and in the emaciated cases one to four drams of cod liver oil three times daily, after meals. (4) A dose of some one of the mineral waters before breakfast two or three times a week if constipation was present. (5) A body dry hot air treatment two or three times weekly. (6) Central galvanization once or twice weekly. (7) A general application of mechanical vibratory stimulation two or three times weekly. (8) A static electrical application, at least once every day, consisting, in acute cases, of the Morton wave current localized over the affected joints or spine, and in the chronic cases of long, thick sparks to the affected joints one day and the Morton wave current localized over these joints the next. (9) With anchylosed joints wherein the acute condition had subsided and the functional impairment was not due to osteophyte formation, passive movements every day, in the form of alternate flexion and extension, the attempt being made to increase the excursion of the manipulated member each time, were of considerable use.

Fifty-one cases that had been treated in private practice during the past four years illustrated what could be done by the application of the treatment outlined. A practical and easily-comprehensible summary of the results obtained in these 51 cases were as follows: Out of 24 patients who were totally incapacitated for the performance of their daily duties, 6 were restored to a condition of unimpaired usefulness, 3 to a condition of but slightly impaired usefulness, and 8 of the remainder discontinued treatment prematurely; out of 27 who were partially incapacitated, 7 were restored to unimpaired usefulness, 4 but to slightly impaired usefulness and of the remainder 14 discontinued treatment prematurely. Out of 36 patients who were suffering constantly from pain, 10 were relieved entirely; in 12 the pain was relieved to such an extent as to be troublesome only ocasionally, and 11 of the remainder discontinued treatment pre-

maturely. Of 15 cases in which pain was present only on movement, 5 were relieved entirely, 3 were greatly relieved, and of the remainder 8 discontinued treatment prematurely. Of 11 cases in which complete anchylosis of one or more joints was present, complete relief was obtained in one or more joints in 2, partial relief in 4, and 5 discontinued treatment prematurely. Of 25 cases in which partial anchylosis of one or more joints was present, 13 were completely relieved, 12 partially and 11 discontinued treatment prematurely. Of 27 cases, wherein the general condition was bad when the treatment was commenced, 10 were restored to normal health, 12 were greatly improved; of 19 cases wherein the general condition was fair, 5 were restored to normal and 8 were greatly benefited.

DR. J. E. GOLDTHWAIT, of Boston, said that the nomenclature used was unimportant so long as we knew what was meant by the terms used. In arthritis deformans Dr. McCrae spoke of two types, the atrophic and the hypertrophic, but there were many cases encountered which he termed infectious arthritis. At times it was impossible to differentiate between the atrophic and hypertrophic at first glance; but with the radiograph it was now quite possible. In the disease described by Still, occurring in both children and adults, he did not know whether it was atrophic or hypertrophic in character; it seemed to be a matter of personal opinion. It seemed to him surprising that we should have these two types of the same disease, and one man had stated, and frankly too, that from the start the disease never became chronic, and others that at the start it was chronic and never became acute.

DR. ALLEN JONES, of Buffalo, did not believe we should throw out the term chronic rheumatism until we had demonstrated positively either the specific cause for acute articular rheumstism, or a specific cause for acute rheumatism and arthritis deformans.

DR. DELANCEY ROCHESTER, of Buffalo, said that the treatment advised by Dr. Skinner was practically out of the question for the general practitioner because of lack of the apparatus. Still he thought very good results could be obtained by them by carefully watching and handling these patients. He thought the application of hot air not so hot as advocated would be productive of good results. The use of the cabinet and friction was of value.

HOW THE GENERAL PRACTITIONER SHOULD TREAT GONORRHEA.

DR. FERDINAND C. VALENTINE, of New York, read this paper and offered the following conclusions: (1) Every general practitioner is practically competent to successfully treat uncomplicated anterior gonorrhea, if he will devote as much attention to this as he does to any one other disease. (2) Every patient with gonorrhea is entitled to the services of his family physician, just as much as if he had acquired any other disease in consequence of drunkenness or other violation of ethics or morals. (3) The general practitioner who declined to treat uncomplicated acute anterior gonorrhea avoids one of the most sacred duties to the profession and to humanity. (4) The patient who, because he has gonorrhea, is refused the services of his physician is likely to become an opponent to scientific medicine, to the detriment of his health, that of his family and of the community. (5) The scientific treatment of at least acute anterior uncomplicated gonorrhea is perfectly within the power of the general practitioner. (6) The irrigation treatment of gonorrhea is, as yet, the most effective method and most in accord with the modern scientific understanding of the disease.

PROBLEMS AND THE TUBERCULOSIS CONVALESCENT.

DR. A. MANSFIELD HOLMES, of Denver, Colo., read this paper. He said pure air and sunshine could avail but little if the patient was not provided with an abundance of suitable food. The wisest advice to patients would avail nothing if the patients are not sufficiently impressed with the importance of proper living, and it was in this that the sanatoria treatment surpassed the home treatment. The danger lay concealed in a latent form long after all subjective symptoms had disappeared. To form a correct estimate of convalescence one should form a composite picture of all the available clinical evidence. If there was a gradual gain in weight extending over a comparatively long period, if this gain was accompanied by a gain in strength, if the gain of weight and strength were permanent, and if the cough, sputum and bacilli diminished and finally disappeared, and if these conditions were maintained for a comparatively long period, a cure might be considered as practically established.

ELECTION OF OFFICERS.

For Chairman, Dr. Richard C. Cabot, of Boston; for Secretary, Dr. Joseph L. Miller, of Chicago. Executive Committee, Dr. Frank A. Jones, of Memphis, Tenn.; Dr. W. S. Thayer, of Baltimore; Dr. Alexander Lambert, of New York.

Recent Literature.

Mammalian Anatomy, with Special Reference to the Cat. By ALVIN DAVISON, Ph.D. 12mo. 1903. Philadelphia: P. Blakiston's Son & Co. pp. 250. 108 figs.

This little book offers an excellent brief introduction to the anatomy of the cat, and being based on the author's practical experience is well arranged and illustrated. Most attention is given to the skeleton. The majority of the illustrations are original and good, though the appearance of some of them is marred by the undue size of the lettering. Its brevity and clearness will recommend this work for use in elementary courses in anatomy in colleges, while the figures, from the author's directions, will give it a wider value. Professor Davison confines himself, except for a few interpolated explanations of wider aspects of his subject, to descriptive anatomy. We cannot but think that the value of this meritorious manual would have been much increased had the author laid more stress upon the fundamental morphological notions, which must underly all correct understanding of anatomical forms; for example, no student would suspect from his descriptions and diagrams that the heart is simply a contorted tube, or that there is a fundamental difference between the thyroid and the other so-called ductless glands. The volume is well printed, and supplied with a good index.

THE BOSTON
Medical and Surgical Journal.
THURSDAY, JULY 7, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

THE QUESTION OF IMMIGRATION AND PUBLIC HEALTH.

THIS country more than most others is exposed to a certain positive danger from the constant advent of foreigners, who either bring with them disease or else are of so low a physical standard that they are little able to maintain a reasonable degree of health on their arrival. Few problems are more difficult than the framing of just laws to meet the peculiar exigencies which immigration to this country presents. In the first place, freedom must be allowed if we are to remain faithful to our traditions, and in the second place it is no less a duty of the authorities to guard those already in the country against disease and incompetency through physical deterioration which a certain class of immigrants brings. The whole question has been ably discussed in a recent article by Dr. Allen McLaughlin of the United States Public Health and Marine Hospital Service, published in the *Popular Science Monthly*. He discusses the matter from the point of view of the physique of the immigrant, his destination and the presence or absence of incurable disease.

Of these three factors, the physique of the immigrant is regarded as by far the most important. It appears that good physical condition was much more general among immigrants twenty-five years ago than at present, when the great majority came from the strong races of Northern and Western Europe, in whom disease of an incurable character was exceedingly rare. Now such immigration has sunk into insignificance when compared with that of the Slavs, Italians, Hebrews and others from the more southerly countries of Europe. This has led to a perfectly defined deterioration in the physique of the immigrant, with a corresponding increase in the percentage of disease. According to present laws, immigrants, however physically defective, are still permitted to become citizens of this country, provided only there is reasonable certainty that they are not likely to become public charges. Those suffering from dangerous, contagious, or venereal disease, or from marked mental derangement, are, on the other hand, deported.

The next point of importance is the distribution of the immigrants. It is a well-recognized fact that individuals of low physical standard will herd themselves together in the most unsanitary parts of our large cities, whereas the strong are more inclined to scatter into smaller towns and to become useful citizens. Of the various races, it is interesting to observe that more Hebrews are sent to hospitals on arrival, proportionate to the number landed, than any other race, whereas a very much larger percentage, namely, 70% of this race coming to New York, remain in the city. More Hebrews are also deported than those of any other race. On the other hand, the Scandinavians are deported in a vastly smaller ratio, fewer are sent to hospitals, and only 18% remain in New York. Between these two extremes come the Italian, Slav and Irish immigrants, the Irish, next to the Scandinavians, being the most acceptable of the immigrant class.

A third factor, naturally of very great importance, is the presence of communicable diseases among the immigrants. The detection of these is by no means a simple matter and requires constant vigilance and skill on the part of the medical inspector. Of these diseases, trachoma is of the most importance because of its frequency. Eighty-seven per cent of the total number of cases of loathsome and dangerous disease is due to trachoma, and 10% to favus. A careful investigation of the presence of trachoma was begun in 1897, in consequence of which many steerage immigrants were found suffering from the disease and were deported. Various subterfuges were forthwith undertaken to avoid the medical inspector, largely through becoming temporarily cabin passengers. Thereafter, in 1898, cabin passengers were also inspected, which has led to much less evasion of the law. The steamship companies have been brought to a sense of their duty in the matter by being made subject to a penalty in transporting diseased immigrants. In 1902 statistics show that among the Syrians landed in this country, one in 66 suffered from trachoma, whereas but one in 4,173 of the Irish

were afflicted with the disease. Within these wide extremes the other types of immigrants are classed, with cases running from one to several hundred up to one to several thousand.

It is interesting to note that tuberculosis of the lungs is a rare disease among immigrants, probably due to the fact that the bulk of our immigrants come from agricultural districts, where tuberculosis is far less prevalent than in large cities. The situation after landing almost immediately changes, inasmuch as tuberculosis is quickly spread through the tenement districts among immigrants lately landed, due naturally to filthy surroundings, often poor general physique and overcrowding, with all that that entails. Dr. McLaughlin finds that the real danger to the public health from immigration lies in that class whose physical condition is far below American standards, and who take up a residence in the East Side tenements of New York City. In conclusion, the following excellent suggestions are made:

If we debar any undesirable class of immigrants under the law, we should endeavor to make the law as nearly perfect as possible and debar all undesirable classes. We debar the immigrant with trachoma, syphilis, leprosy or favus; also the insane, the epileptic and the idiotic, but we admit the immigrant with poor physique, unless it is so marked as to make him undeniably a public charge.

There should be but one standard of physique for the immigrant, no matter whether his destination be the Pennsylvania mines or the New York sweat-shops. The skilled laborer should be expected to possess the same rugged physique as is now expected of the unskilled laborer. The standard should be fixed by law by comparison with other well-recognized standards of physique, and should be sufficiently high to exclude all who could not beyond doubt make a living at hard manual labor. The wording of the law should be definite enough to make the medical certificate of poor physique equivalent to deportation.

This requirement of a definite physical standard in immigrants could be exacted without undue hardship of all unmarried male immigrants within certain age limits, for instance, eighteen to forty-five. In regard to families, comprising women, children and old men, in addition to males between the ages of eighteen and forty-five, each family should be required to have at least one member constituting its chief support who could comply with the physical requirements of the law. The law need not apply to parents coming here to join their children, provided the children have established a home here and presented evidence of ability to care properly for their parents.

If the thousands of recruits for the sweat-shop army which arrive each year could be thus checked for ten years, the present existing tenement house problem would solve itself. The terrible congestion of the tenements would be relieved; the scale of wages for the sweat-shop worker would be elevated, and the general sanitary conditions of life in such districts as the Lower East Side, New York City, could be improved sufficiently to reduce the menace to the public health from this cause to a minimum.

THE MEDICAL PRESS.

THE medical profession is quite used to the flattery and eulogy of orators, and accepts with good grace and sufficient humility what is continually being said of it. There is, nevertheless, a certain gratification in hearing the praises of the profession sung by a layman where no special call for such eulogy is apparent. For example, the Hon. S. W. McCall, in his address last week before the Harvard Phi Beta Kappa Society, made the following remarks:

The nobility of the work of a calling will elevate those who devote themselves to it. Take the profession of medicine. Undoubtedly, the physicians might flaunt their cures, might play with the lives of their patients for their own financial gain and might show the same sort of enterprise that is too often shown by editors. If it be said that the newspapers give the public that which it is willing to pay for and that the responsibility for the press lies with the people, the quack could make a similar plea, and if he possessed skill in his calling he might gain wealth by its degradation. But inspired in the mass by the noble ethics which the profession imposes upon itself, we see physicians risking their lives in battle to save while those about them are striving to kill; we see them exposing themselves freely to the more deadly perils of infection, drawing generously upon their own strength that they may give it to others; we see them, in short, a profession of heroes.

Congressman McCall's oration concerned itself with the newspaper press, in which he found much to criticize, as conducted at the present time, in spite of the high ideals which should stand back of the profession of journalism. His discussion was confined to the daily press, and took no note of what is being done in the journalism of special callings. We accept with gratification as essentially true what he said about the ideal of the physician in his attitude toward his professional work, and our modesty is not too great to tempt us to carry the simile a step further and allude to the really high standard toward which most of our medical journalism has striven, and which it has in general maintained amid many temptations and discouragements. The element of sensationalism rarely finds its way into medical periodicals which are read by the rank and file of the profession, and

it is certainly the exception to find that surrender to the commercial spirit which Mr. McCall so strongly deprecated in the daily press.

BOSTON FLOATING HOSPITAL.

The Boston Floating Hospital began its ministrations for the summer July 6. It is proposed to make daily trips down the harbor, provided the weather permits, except on Sundays, from this date to some time in September. On Sundays and every night up to eight o'clock in the morning the patients will be admitted to the hospital at Pickert's Wharf, East Boston, near the North Ferry. The trips of the hospital will be from City Wharf, South Ferry, leaving at 9.30 in the morning and returning about four. Patients will also be received at these hours. The limit of age for patients is six years, and the requirement for admission a certificate signed by a physician from the Floating Hospital office, 178 Devonshire Street, from many of the dispensaries and hospitals, and from physicians and agents of charity organizations in the city proper, as well as from greater Boston. Admission cards may be had by application.

This hospital has had many years of usefulness, and certainly this type of hospital, not only in this city but in others, fills a place which can hardly otherwise be supplied, and particularly, under the conditions now existing in Boston, is it desirable that infants and small children during the hot months should have some means of obtaining the fresh air and direction regarding food and other details which are so essential to the preservation of their health. The usual closing of the infants' hospital throws an added burden on the managers of the Floating Hospital, which it has hitherto borne with excellent results. The institution is largely a charity, and is dependent in great measure for its continuance upon the subscriptions of those interested in the undertaking. We regret at times the sentimentalism which appears to be inevitable in the conduct of this hospital, but that after all this is wholly a minor consideration in view of the unquestioned value to the community which the institution provides. We certainly wish for it this year, as heretofore, a satisfactory season, unhampered as far as may be by anxiety as to ways and means.

MEDICAL NOTES.

A Proposed Statue to Dr. William Elias B. Davis. — A statue in memory of Dr. William E. B. Davis, late of Birmingham, Ala., is to be erected under the auspices of the Southern Surgical and Gynecological Association of which Dr. Davis was the originator. It is proposed to have the statue ready by Dec. 1 in order that it may be unveiled at the coming meeting of the Southern Surgical and Gynecological Association.

President of the American Medical Association. — Regarding the election of Dr. Lewis S. McMurtry of Louisville to the presidency of the American Medical Association, the *New York Medical Journal* takes occasion to pay him the following tribute:

> There has been no lack of efficient and graceful occupants of the presidential chair of the American Medical Association, especially in recent years, but we venture to say that the president elected at the last meeting, Dr. Lewis S. McMurtry of Louisville, will bring to bear on the duties of his office such alertness of mind and such courtesy and forbearance as are rarely to be met with in a single individual.

Honors for Medical Men. — Dr. William S. Halsted, professor of surgery in the Johns Hopkins University, was given the degree of LL.D. at the recent commencement exercises at Yale University. Dr. Halsted this year delivered the address to the graduating class at the Yale Medical School.

Dr. Frederick H. Gerrish, professor of anatomy in Bowdoin Medical College, the author of the well-known textbook on anatomy, has received the degree of LL.D. from the University of Michigan.

The University of Dublin has conferred the doctorate of science upon Prof. F. Klein of Göttingen, Major R. Ross, professor of tropical medicine at Liverpool, and Dr. W. H. Thompson, King's professor of the institutes of medicine.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, July 6, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 40, scarlatina 15, typhoid fever 8, measles 45, smallpox 0.

Bequests to Hospitals. — By the will of the late Mrs. Henry Whitman of Boston, public bequests amounting to upwards of $200,000 are made. The hospitals to be benefited are: The Children's Hospital, Boston, $10,000, for the endowment of two beds; the Home for Incurables, Boston, $5,000; Massachusetts Infant Asy-

lum, $5,000. In addition to these bequests $20,000 is left to the Society for the Relief of Crippled and Deformed Children.

BOSTON MORTALITY STATISTICS. — The number of deaths reported to the Board of Health for the week ending July 2 was 180, as against 168 the corresponding week last year, showing an increase of 12 deaths, and making the death-rate for the week 15.28. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 41 cases, no deaths; scarlatina, 12 cases, 1 death; typhoid fever, 13 cases, 3 deaths; measles, 42 cases, 1 death; tuberculosis, 51 cases, 23 deaths; smallpox, no cases and no deaths. The deaths from pneumonia were 16, whooping cough 1, heart disease 23, bronchitis none, marasmus 3. There were 10 deaths from violent causes. The number of children who died under one year was 41, under five years 55, persons over sixty years of age 32, deaths in public institutions 65.

NEW YORK.

MEDICAL EXAMINATION OF STREET CLEANERS. — Dr. Woodbury, Commissioner of Street Cleaning, has made public the result of the medical examination which has been going on for some weeks among the sweepers employed in his department. Out of 1,872 men examined, 60 were found to be affected with tuberculosis, and 223 with chest affections liable to result in that disease, making a total of 283 cases, or about 15%.

IN MEMORY OF DR. JARED LINSLY. — Among the gifts to the University announced by President Hadley at the meeting of Yale Alumni, on June 28, was a bequest of $250,000 from William B. Ross of New York, of the class of 1852, in memory of the late Dr. Jared Linsly, a prominent and highly esteemed New York physician of the last generation. This fund is to be used for the construction of the much needed central section of the university library.

AWARD FOR HEROISM. — The first gold medal to be awarded for heroism in connection with the "Slocum" disaster has been presented, together with a handsome purse, by the coroner's jury in charge of the case, to Mary McCann, an Irish girl, sixteen years of age, who only arrived in this country on May 11. At the time the "General Slocum" was beached on North Brother Island she was convalescing from scarlet fever in the hospital there, and she personally saved the lives of five children and one woman. In rescuing the latter from the water she very nearly lost her own life, and when she and her struggling charge were at last dragged ashore by one of the hospital attendants, she was completely exhausted. It is gratifying to learn that the exertions of this brave young girl and the exposure to which she was subjected were not followed by any serious effects.

TRANSFERENCE OF ASSISTANT SANITARY SUPERINTENDENTS. — On June 29 there was a general "shake up" among the assistant sanitary superintendents of the various boroughs, Dr. Bensel being transferred from Manhattan to Brooklyn, Dr. Sheil, from the Bronx to Manhattan, Dr. Murray from Brooklyn to Queens, Dr. Moore from Queens to Richmond, and Dr. Sprague from Richmond to the Bronx. President Darlington announced that there was no politics in this general transfer, stating that it was made simply for the good of the service and after a consultation with the chief sanitary superintendent, Dr. Roberts, and other officials. It was thought advisable, he said, that the assistant superintendents should become familiar with the work of the department in boroughs other than those in which they had been serving, and the change was designed as only a temporary one, as it must necessarily put the physicians to some inconvenience to do duty at considerable distances from their homes.

EXCITEMENT OVER A CASE OF SMALLPOX. — Much excitement was recently caused among the thirty families living in a tenement house on upper Third Avenue, by the death, in the house, of an Italian from smallpox. It became necessary to call upon the police to preserve order and compel the tenants to submit to vaccination. The patient had arrived from Europe only thirty days before his death, and was attended by a man known only as "Tony," who admitted that although he had been practising among the Italian families of the Bronx as such, he was not a qualified physician. The case was concealed until after the patient's death, and the way it became known was through Tony's asking Dr. Granna, a neighboring physician, for a death certificate, for which he offered to pay three dollars. Failing to obtain this, Tony thought it advisable to disappear, and no trace of him has as yet been found. This is the first case of smallpox which has occurred in the Bronx during the present year, and the house in which it occurred contained about three hundred persons.

Appointment of Miss Jane Delano at Bellevue Hospital. — It appears from a ruling given last month by the Municipal Civil Service Commission, that Dr. William P. Spratling of the Craig Colony for Epileptics at Sonyea, who was recently appointed superintendent of Bellevue Hospital, New York, was not eligible to that position because he had not been subjected to a civil service examination. It was then open to the trustees of Bellevue and Allied Hospitals either to appoint a superintendent from among those persons already holding positions at Bellevue, or to transfer to the head of Bellevue some one connected with one of the other hospitals under the jurisdiction of the Board of Trustees. It is now announced that the appointment has been given to Miss Jane Delano, who for several years has been at the head of the Bellevue training school for nurses. Miss Delano was graduated from the Bellevue school in 1886, and in 1888 took charge of the yellow fever hospital at Jacksonville, Fla. The year following she was made superintendent of the Copper Queen Mining Company's hospital at Bisbee, Ariz., under the direction of Dr. Thomas Darlington, now president of the New York Health Department. While there she was appointed assistant superintendent of the hospital and training school for nurses of the University of Pennsylvania, where she remained for six years.

Obituary.

THEODORE F. BRECK, M.D.

Dr. Theodore F. Breck, medical examiner for the Second Hampden District, died in Springfield, June 26, in his fifty-eighth year. His great-great-grandfather graduated at Harvard in 1742, and was a prominent physician in Western Massachusetts. His father also was a physician, graduating from Harvard in 1854. Dr. Breck graduated at the Harvard Medical School in 1866, and studied thereafter in Vienna and Paris. Returning from Europe in 1869 he began medical practice in Springfield, and there remained up to the time of his death. Since 1870 he was surgeon of the Boston & Albany Railroad, and since 1877 medical examiner for a part of Hampden County. He also served for twenty-four years on the staff of the Springfield Hospital, from which he had but recently resigned. He was a member of the Massachusetts Medical Association, the Massachusetts Medico-Legal Association, the National Association of Railway Surgeons, and various other medical organizations.

Miscellany.

MEDICAL ASPECTS OF THE WAR IN THE EAST.

Sir Frederick Treves, writing from Tokyo, publishes in a recent number of the *British Medical Journal* certain comments, in part as follows, on the war now in progress:

Thanks to the kindness of Surgeon-General Koike, the Director-General of the Army Medical Service, I was able to visit military hospitals and to learn something of the organization of the service he so ably controls. There is at Tokyo, also, Lieut.-Col. Macpherson, R.A.M.C., who is the medical attaché appointed by the English War Office, and his report of the condition of the Japanese Army Medical Service will be of great value and interest. Nursing sisters are not employed by the Japanese Medical Corps, nor indeed have female nurses any part in the organization of the department. The field equipment of the Army Medical Corps in Japan is excellent, light, simple, and inexpensive, and full of ingenious devices in almost every department.

In times of war the Red Cross Society supplements the medical work of the service. This society is remarkable in its size, its many branches all over the country, its important work, and its very admirable organization. It is a society of voluntary workers, has no direct official connection with the Army Medical Corps, but the utmost use is made of its invaluable services.

It not only maintains hospitals for soldiers in Japan, but it supplies an immense staff of civil surgeons and nurses. More than that it concerns itself in every way with everything that relates to the comfort of the soldier in times of war. The officers, non-commissioned officers and male sick attendants accompany the troops to the front. The military hospitals in Japan are thus emptied of their staff and are taken over by the Red Cross Society. That society provides civil surgeons for these hospitals and female nurses. The nurses are, of course, Japanese, and are well trained. Three years' training is required. The Red Cross Society is able to supply through its various branches no less than 3,000 female nurses and 2,000 male nurses. Female nurses will not be sent to the front, but will undertake duty in Japan in the military and Red Cross hospitals in various parts of the country. It is needless to say, therefore, that the military authorities need neither surgeons nor nurses, and it is difficult to understand how foreign nurses with no knowledge of the language and little insight into Japanese modes of living could be made use of. Pecuniary support to the Red Cross Society is the most practical way of helping the Japanese in their efforts to provide liberally for the sick or wounded soldier.

During a residence of two months in Japan I have been greatly struck by the admirable bearing of the people — in all classes of society — in connection with the war. The Japanese are intensely patriotic, but their patriotism is a solemn sentiment and not a temporary neurosis. There is no boasting and no bragging, and no symptom or trace of "Mafficking." In discussing their successes they are always modest, and their attitude towards an enemy who has experienced a temporary reverse is almost sympathetic. If the attitude of a people during a time of war can be discussed as a matter of taste, it may be appropriate to say that the attitude of the Japanese has been characterized by such good taste that it is worthy of imitation.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 25, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Cerebro-Spinal Meningitis.	Typhoid Fever.
New York . .	3,908,644	1,691	481	26.31	7.51	2.07	2.84	.41
Chicago . . .	2,021,086	393	98	25.69	7.63	1.27	—	1.53
Philadelphia	1,407,968	395	123	27.34	10.88	2.02	—	1.77
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	154	52	33.76	4.54	—	—	1.95
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	142	—	40.84	7.74	.70	2.11	6.34
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	85	18	18.18	5.45	3.63	1.81	—
Boston . . .	617,950	174	51	21.84	10.34	1.72	—	1.14
Worcester . .	186,925	29	9	6.90	10.34	—	3.45	—
Fall River . .	119,849	38	15	31.57	7.89	—	—	—
Lowell . . .	104,402	27	9	25.92	3.70	—	3 70	—
Cambridge .	100,998	17	5	17.65	5.88	11.76	—	5 88
Lynn	73,875	13	3	15.40	—	7.70	—	—
Lawrence . .	72,348	17	9	29.41	17.64	—	—	—
Springfield .	72,020	—	—	—	—	—	—	—
Somerville .	70,413	18	4	27.77	—	—	—	—
New Bedford	68,883	26	7	26.95	3.85	—	—	3.85
Holyoke . . .	50,538	17	6	5.88	5.88	—	—	—
Brockton . .	46,601	8	1	37.50	—	—	—	—
Newton . . .	39,310	8	1	25.00	—	—	—	—
Haverhill . .	39,061	7	1	14.30	14.30	—	—	—
Malden . . .	37,205	4	2	—	—	—	—	—
Salem	37,188	13	3	—	15.40	—	—	—
Chelsea . . .	36,499	16	4	31.25	18.75	12.50	6.25	—
Fitchburg . .	36,325	3	—	—	—	—	—	—
Taunton . . .	34,577	8	4	25.00	25.00	—	—	—
Everett . . .	30,209	7	3	28.60	—	28.60	—	—
North Adams	29,201	6	1	33.33	—	16.67	—	—
Quincy . . .	26,798	9	4	44.44	—	22.22	—	—
Gloucester .	26,121	9	1	11.11	—	—	—	—
Waltham . .	25,797	6	—	16.67	—	—	—	—
Brookline . .	25,576	3	—	—	—	—	—	—
Pittsfield . .	22,870	15	—	33.33	6.66	—	—	—
Medford . .	21,956	3	—	33.33	—	—	—	—
Chicopee . .	21,692	6	2	33.33	—	—	—	—
Northampton	20,314	3	—	33.33	—	—	—	—
Beverly . . .	15,807	4	—	—	50.00	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	1	—	—	—	—	—	—
Adams . . .	14,745	2	0	50.00	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	8	3	12.50	—	—	—	—
Newburyport	14,478	6	1	—	—	—	—	—
Woburn . . .	14,315	6	3	16.67	16.67	—	—	—
Melrose . . .	13,819	—	—	—	—	—	—	—
Westfield . .	13,809	1	—	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	2	0	—	—	—	—	—
Revere . . .	13,609	2	—	—	—	—	—	—
Framingham .	13,974	—	—	—	—	—	—	—
Peabody . . .	13,406	—	—	—	—	—	—	—
Gardner . . .	13,324	1	—	100.00	—	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	2	0	—	—	—	—	—
Weymouth . .	11,350	0	—	—	—	—	—	—
Plymouth . .	11,189	3	—	33.33	—	—	—	—

Deaths reported, 3,378; under five years of age, 924; principal infectious diseases (smallpox, measles, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 839; acute lung diseases 264, consumption 388, scarlet fever 28, whooping cough 7, cerebrospinal meningitis 55, smallpox 1, erysipelas 6, puerperal fever 9, measles 41, typhoid fever 36, diarrheal diseases 251, diphtheria and croup 65.

From whooping cough, New York 1, Chicago 4, Baltimore 1, Pittsburg 1. From smallpox, Philadelphia 1. From cerebrospinal meningitis, New York 48, Pittsburg 3, Providence 1, Worcester 1, Lowell 1, Chelsea 1. From typhoid fever, New York 7, Chicago 6, Philadelphia 7, Baltimore 3, Pittsburg 9, Boston 2, Cambridge 1, New Bedford 1. From erysipelas, New York 5, New Bedford 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending June 11, the death-rate was 14.1. Deaths reported 4,136; acute diseases of the respiratory organs (London) 64, whooping cough 124, diphtheria 38, measles 202, smallpox 7, scarlet fever 25.

The death-rate ranged from 7.0 in Walthamstow to 25.6 in Warrington; London 13.3, West Ham 11.8, Brighton 14.5, Southampton 10.7, Plymouth 9.2, Bristol 12.2, Leicester 11.6, Nottingham 11.9, Birkenhead 12.7, Liverpool 20.5, Bolton 9.8 Manchester 16.3, Salford 18.4, Bradford 14.8, Leeds 15.6, Hull 17.7, Sheffield 14.2, Cardiff 11.8, Rhondda 19.2, Wigan 18.3, Merthyr Tydfil 13.6, Kings Norton 11.0.

METEOROLOGICAL RECORD.

For the week ending June , in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. . 19	30.06	69	76	62	51	60	56	N W	S	6	7	C.	C.	0
M. . 20	29.92	70	80	61	46	74	60	N E	S W	4	13	C.	C.	0
T. . 21	29.62	75	84	66	78	74	76	S W	S W	12	10	F.	C.	.12
W. . 22	29.68	74	85	62	84	65	74	S W	N	4	21	O.	O.	.65
T. . 23	30.26	66	73	58	53	48	50	N E	S	10	11	C.	F.	0
F. . 24	30.22	70	84	57	56	65	60	W	S W	12	16	C.	C.	0
S. . 25	29.98	76	90	63	69	86	78	S W	S W	8	12	F.	R.	.23
☞	29.96		82	61			65							.40

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

RECENT DEATHS.

SAMUEL LEONARD ABBOT, M.D., M.M.S.S., died in Boston, July 1, 1904, aged eighty-six years.

CHARLES S. WOODWARD, M.D., of New York, died at Glens Fall, N. Y., on June 26, after a lingering illness. He was a native of Michigan, and thirty-five years of age. He was graduated from the medical department of the University of the City of New York in 1891.

ROLLIN H. BURR, M.D., of Middletown, Conn., an instructor in the Yale Forestry School, was drowned in the Delaware River, near Port Jervis, N. J., on July 1, while saving the life of one of his pupils, who was upset in a canoe. He was camping on the river bank with a party of thirty students for training in athletics and the enjoyment of outdoor life, and had just finished a lecture on First Aid to the Injured, when the accident occurred. The young man whom he rescued was resuscitated, but Dr. Burr's body was not found for a considerable time.

TREASURY DEPARTMENT.

BUREAU OF PUBLIC HEALTH AND MARINE HOSPITAL SERVICE,

WASHINGTON, D. C., June 29, 1904.

A board of officers will be convened to meet at the Bureau of Public Health and Marine Hospital Service, 3 B Street, S. E., Washington, D. C., Monday, October 3, 1904, at 10 o'clock A.M., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine Hospital Service. Candidates must be between twenty-two and thirty years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character. The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists in examination on the various branches of medicine, surgery and hygiene. The oral examination includes subjects of preliminary education, history, literature and natural sciences. The clinical examination is conducted at a hospital, and when practicable, candidates are required to perform surgical operations on a cadaver. Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur. Upon appointment the young officers are, as a rule, first assigned to duty at one of the large hospitals, as at Boston, New York, New Orleans, Chicago or San Francisco. After five years' service assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon. Promotion to the grade of surgeon is made according to seniority, and after due examination as vacancies occur in that grade. Assistant surgeons receive sixteen hundred dollars; passed assistant surgeons, two thousand dollars, and surgeons twenty-five hundred dollars a year. When quarters are not provided commutation at the rate of thirty, forty and fifty dollars a month, according to grade, is allowed. All grades above that of assistant surgeon receive longevity pay, ten per centum in addition to the regular salary for every five years' service up to forty per centum after twenty years' service. The tenure of office is permanent. Officers traveling under orders are allowed actual expenses. For further information, or for invitation to appear before the board of examiners, address

SURGEON-GENERAL,
Public Health and Marine Hospital Service,
WASHINGTON, D. C.

Address.

ANIMAL EXPERIMENTATION.[1]

BY HAROLD C. ERNST, A.M., M.D.,
Professor of Bacteriology in the Harvard Medical School.

WHILE thinking upon the subject I have been asked to treat to-day, I chanced upon the editorial comment of *The Outlook* on two papers it recently published concerning animal experimentation, or, as it is there called, vivisection.

This comment seems so pertinent, that I have ventured to transcribe a portion of it, for it is well to show at the outset that the position I may take in this matter has the very recent support of high ethical authority.

After speaking of the nature of the articles printed, the comment goes on to say:

"Man's relation to the lower orders of creation is accurately expressed in the account by the ancient prophet, who wrote the account of creation in the first chapter of Genesis: 'And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.'

"The animal creation is made for man, and he has a right and a duty to use it in whatever way will best minister to his highest life. He has not a right to treat animals cruelly, because all cruelty is wrong, and because cruelty does not minister to man's highest life but dishonors and degrades and deteriorates him.

"But with this definition, which is a definition and not a qualification, the fish of the sea, and the fowl of the air, and every living thing that moves upon the earth are subservient to man, and to be used by him. He has therefore a right to hunt and to fish, to slay and to eat, to use the horse to carry burdens and the dog to watch his flocks, the bee to hive his honey, the hens to lay eggs for him, the birds of the air to sing to him; and by the same right, he may use them in vivisection, if such use will minister to the health, the life, the welfare of the human race.

"There are two and only two questions involved in the problem of vivisection. The first question is, Does it minister to the health, the life, the welfare of the human race? To this there can be but one answer, the affirmative one. Then it ought to be practiced under such conditions as will make its ministry to man the greatest, its pain to animals the least.

"The second question is, What are these conditions? Vivisection before pupils in the grammar school, vivisection merely to gratify an idle or morbid curiosity, vivisection which has no health-giving end in view, vivisection which is regardless of and indifferent to the suffering of the animal is wrong, because it does not really minister to human well-being. The vivisection of science, the vivisection which is really seeking to learn the secrets of life and death, vivisection pursued with serious purpose in order to alleviate human suffering, and to prolong human life, vivisection carried on under conditions that reduce as far as possible the suffering of the animal operated upon, deserves commendation, not criticism, and its practice under these conditions belongs in the rank of the great modern philanthropic achievements." — *The Outlook*, April 9, 1904.

This comment might easily be extended, so far as the good sought is concerned, for many results from animal experimentation have been secured that have tended to the marked benefit of the lower animals and not to that of man.

"We must take the Universe as we find it. It is one in which life is constantly destroyed, doubtless for the benefit of other lives. As the highest type of the animal species, we at least need not be consciously cruel, but we should be blind to the teachings of Nature and invite race destruction if we did not seek to strengthen our species by endeavoring in every way to provide for it safeguards against the ravages of the lower types of life." — Editorial, *Boston Herald*, March 8, 1900.

All other animals claim, without hesitation, the destruction of other species than their own for their own benefit. It is doubtful if any wild animal, at any time, ever dies a natural death, always one of violence or starvation. Man does not at any time hesitate to claim his right over other animals to use them for pleasure, for decoration, for service, or for food. How, then, should he hesitate to use them — as in many heroic instances he has used himself — for the benefit of the human race?

That this latter has occurred in innumerable instances, the history of every epidemic shows, and the moral heroism thus demonstrated is all the greater in that it does not receive recognition. One of my most honored medical brothers — since passed on to his well-earned rest — once offered himself to me for a demonstration that, if attempted, he knew and I knew would result fatally. I have never passed through a more solemn or elevating scene than when this example of moral heroism was presented to me.

For the advance of knowledge, and for the better relief of suffering, animal experimentation must go on; there is no alternative. Few of my hearers will take the position of one active opponent of the practice that she would prefer to die rather than benefit by its results; and none, I hope, would repeat the blasphemous declaration that they would rather see a crucifixion than that it should go on.

The clear position of the loving parent is, "Just in proportion as I love my own children, I am willing that certain guinea pigs should be experimented upon for their sakes. I am not willing that a single guinea pig should be tortured needlessly, but I want the man who takes the life of my child in hand to do no needless experimenting upon the child in order to save guinea pigs." (Rev. W. E. Barton, March 9, 1900, quoted by H. C. E., BOSTON MEDICAL AND SURGICAL JOURNAL, June 14, 1900.)

[1] Read at the Annual Meeting of the American Social Science Association, Huntington Hall, Boston, May 13, 1904.

Speaking upon this subject, one of the clearest writers of the day says: "The insidious growth of selfishness is a disease against which men should be most on their guard; but it is a grave though a common error to suppose that the unselfish instincts may be gratified without restraint. The fatal vice of ill-considered benevolence is that it looks only to proximate and immediate results without considering either alternatives or distant and indirect consequences. A large and highly respectable form of benevolence is that connected with the animal world, and in England it is carried in some respects to a point which is unknown on the Continent. But what a strange form of compassion is that which long made it impossible to establish a Pasteur institution in England, obliging patients threatened with one of the most horrible diseases that can afflict mankind to go — as they are always ready to do — to Paris, in order to undergo a treatment which what is called the humane sentiment of Englishmen forbids them to receive at home! What a strange form of benevolence is that which, in a country where field sports are the habitual amusement of the higher ranks of society, denounces as criminal even the most carefully limited and supervised experiments on living animals, and would thus close the best hope of finding remedies for some of the worst forms of human suffering, the one sure method of testing the supposed remedies, which may be fatal, or which may be of incalculable benefit to mankind! It is melancholy to observe how often sensitive women, who object to field sports, and who denounce all experiments on living animals, will be found supporting with perfect callousness, fashions that are leading to the wholesale destruction of some of the most beautiful species of birds, and are, in some cases, dependent upon acts of very aggravated cruelty." (W. E. H. Lecky. The Map of Life, 1889, pp. 36 and 41.)

For some time *The New England Anti-Vivisection Society Monthly* (now known as *The Animal's Defender*) published the following: "What is vivisection, and what can I do to help the crusade against it? Answer: Vivisection is the mutilating, cutting and burning of living animals; they are dissected, roasted, boiled and skinned, when alive *and in full possession of their faculties* [italics mine]. Nerves are dissected out, laid bare and connected with the poles of a powerful battery, from which currents of electricity are passed over these nerves; this probably causes the greatest agony of which sentient beings are capable. The New England Anti-Vivisection Society opposes vivisection, (1) because the number of animals vivisected, with unknown and inconceivable agony to each one, is probably several thousand each day; (2) because anesthetics are very seldom efficiently used; (3) because the results of vivisection are as near to absolute worthlessness as it is easy to get, in fact cause great and absolute harm; (4) because, as recent revelations in the *Transcript* (1889) and other papers abundantly show, vivisectors of prominence and supposed character are, almost without exception, untruthful, and cannot be relied upon to tell the truth about their own acts," — and so on. These statements are so positive, and, if true, would be so overwhelming, that it is hardly conceivable that they would have been put forth with no better evidence to support them than has been offered from time to time. Full hearings have been given upon this subject by joint committees of the Massachusetts legislature, not only in one year, but for five successive years. Every opportunity has been given for the presentation of any specific evidence of cruelty or of the abuse of the practice of animal experimentation within this Commonwealth. The result has been uniformly the report of the committee giving "leave to withdraw" to the supporters of the various bills that have been presented favoring further legislation in restriction of or abolishing animal experimentation. If any portion of these statements of fiendish cruelty and useless experiment had been shown to be true, such a result before these successive committees would have been impossible.

None of the statements in the extract from the Anti-Vivisection magazine are specific of individual cases; only when this happens is it possible to make specific replies. The well-known case of Bayliss *v.* Coleridge is one in point and demonstrates how inaccurate, supposedly accurate observation may be; the circumstances should be of interest to all those concerned in the advancement of medical knowledge. They may be summarized briefly as follows: Two young Swedish women, of good education and social position, had been visiting various laboratories and attending lectures in courses on physiology, apparently with the purpose of securing evidence to be used in propaganda against animal experimentation. During the winter of 1902–03 they visited London, and in February, 1903, at one of a course of lectures in physiology at University College, they claimed to have witnessed experiments that were conducted with great cruelty and in violation of the law. They were at this lecture, as they had been at others, not as genuine students of physiology, but as seekers after evidence in their crusade against animal experimentation of any kind. They were well educated and might be supposed to be honest. It would be natural, therefore, to believe that they could see and understand what went on within a few feet of them, and would take pains to report truthfully what they saw. They testified that they saw no tube connection made for purposes of artificial respiration; that the animal experimented upon made many purposive movements, indicating a conscious struggling; that they smelled no anesthetic, and believed that none was given; that cries, whines, and barks had been heard, and that the animal had made a shrinking movement, as of fear, at the first approach of the operator. As against this professedly close and accurate observation, it was proved in court, before the Lord Chief Justice of England: (1) that artificial respiration was carried on all the time the animal was on the

table in front of them; (2) that the animal was profoundly anesthetized — one and a half grains of morphia (a very large dose) had been injected before it had been brought into the room and that six ounces of the "A. C. E." mixture (alcohol, chloroform and ether) had been used during the operation; (3) that this particular dog was affected with chorea, and that the movements seen were choreic, not purposive, in character; (4) that tracheotomy had been performed, and it was impossible therefore that any cries, whines or barks could have been heard; (5) that the shrinking movement of fear testified to could not have occurred for the above reasons.

The ladies, relying upon their own powers of observation, made a statement of what they claimed to have seen to Mr. Stephen Coleridge, honorary secretary of the Anti-Vivisection Society (of England), a lawyer and a member of the English bar. This gentleman, as he testified, accepted their statement without any attempt at verification, although he knew that giving publicity to it would be likely to be followed by prosecution. Apparently, however, the search for evidence to support the agitation had grown so desperate that this opponent of animal experimentation was ready, even anxious, to use the testimony, and did so, amid great enthusiasm, at the annual meeting of the Anti-Vivisection Society, early in May, 1903.

The prosecution for libel followed promptly, with the substantial verdict against the defendant of nearly ten thousand dollars (£2000).

That a lawyer, trained in the weighing of evidence and with a knowledge of the necessary responsibility accompanying specific assertions of cruelty, should have taken no step to verify his supposed facts, seems inexplicable. The defendant gave as his reason that he knew they would be denied, and during cross-examination went so far as to say that he still beleived the women to have testified to the truth; this after their statements had all been denied under oath.

Here is the condition of mind we have found much nearer home. The opponents of animal experimentation deny its usefulness, in the face of overwhelming evidence to the contrary, evidence that to them is not such, for they do not believe it when it is stated, and take no pains to verify it by actual observation. It may, perhaps, be fortunate, after all, that such attempts at verification are not made by such people, if their interpretation of the facts seen by them is to be as false as it was in this instance.

It has not yet happened that specific allegations of cruelty have been made in Massachusetts. Of general assertions there have been many, all of the same character, and repeated year after year. Perhaps such a disastrous failure as that of Mr. Coleridge, in the exploitation of an unsubstantiated calumny, may prove a salutary warning even to the most violent opponents of physiological research and teaching. That simple limitation is not what they desire, but absolute prohibition, is becoming more and more evident year after year.

If the unhampered advance of medical knowledge is to go on, ever watchful care must be taken that methods like those illustrated in this trial are not successful. (H. C. Ernst, editorial, *Journal of the Massachusetts Association of Boards of Health*, xiv, No. 1, Feb., 1904.)

This case furnishes the best possible example of the difficulty of relying upon the observation of persons whose honesty of purpose may hardly be questioned, as one was not at first tempted to do, even in this instance. What, however, can be said, when, in spite of the testimony brought out in the trial of the suit for damages, showing that their observed and deduced facts were not facts; in spite of the advice of the defendant in this suit, whose reputation and pocket had suffered so severely by reason of his reliance upon their statements, — what can be said of the honesty of purpose that led these women to publish this same case as truth, and without a single qualifying word of doubt? Such methods of interpretation are not a surprise to one like myself, whose duty has required the close examination and sifting of assertions brought forward in support of repeated attempts to secure unnecessary and burdensome legislation upon this subject in this Commonwealth.

I have, I believe, been more or less actively concerned in opposition to every attempt at legislation of this sort in this state. I do not remember that I have missed a single hearing upon the matter; and I have attempted to sift every piece of assertion that has been brought forward in favor of the proposed legislation to further restrict or to abolish animal experimentation. I paid so much attention to the matter in the early days of my experience with it because I wanted to learn. I am myself a lover of animals, as all my neighbors know; and when my own work began to lie in the direction of animal experimentation in the hope of increasing the sum of human knowledge or doing some small thing towards the relief of human suffering, it became a matter of anxious consideration with me as to how much of this work I should do and how far such influence as I had should be allowed to support it.

So far as I have been able to do so, I have studied the matter from all its points of view, from its moral as well as its utilitarian side; and so far as its justification is concerned, the evidence has appeared to me to be so overwhelmingly in its favor that I have been compelled to become its uncompromising supporter. It seems to me impossible that anyone who has lived, as it is our privilege to live, in a generation that has seen the labors of a Pasteur, of a Koch, or of a Reed; who has had actual experience in seeing the sick snatched from the grave by the timely use of the results of similar labors; or who is able to realize the enormous saving of life to both man and the lower animals as the result of this method of study; it seems, I say, impossible that such an one can honestly oppose the continuation of the practice of animal experimentation in the freest possible way.

And by this I do not mean, nor do I know anyone else to mean, unlimited freedom to anyone to experiment at any time and in any way upon the lower animals. Such freedom does not and should not exist.

That it does not exist is not, I believe, generally known, for it is only because the present laws in the case are not known that much of the support is given to the annual agitation for further restriction of the practice. One example of this is furnished by a well-known and highly honored clergyman of this community, who signed the petition for one of the recent bills and appeared at a hearing in its favor. At this hearing he spoke eloquently and somewhat at length in favor of placing some restrictions upon the practice, evidently under the impression that none then existed. Upon being informed of the actual condition of the laws and that the passage of the bill would seriously interfere with the beneficent work of many of his friends, his consternation was amusing, and pathetic as well. He himself proposed the remedy that the remonstrants to the bill should get up a counter petition, and promised to sign that, too.

It is not true that restrictions to the practice of animal experimentation are lacking. The implications and assertions that none exist are not based upon facts, any more than is the description already quoted, of what "vivisection" is.

The editorial writer in *The Outlook* speaks of the needlessness of such demonstrations in the public schools, and in that I heartily agree with him. But there is now, and has been for years, a law upon the statute books absolutely prohibiting vivisection in the public schools, and no attempt whatever has been made, so far as I have heard, to modify or to evade its provisions. This part of the question is therefore absolutely closed.

The present laws governing cruelty to animals cover all remaining cases, and to show how completely this is true I may be permitted to quote them in part: "Whoever overloads, overdrives, or overworks, or deprives of necessary sustenance, or cruelly beats or mutilates an animal, or procures this to be done to any animal; or, having charge of or being in custody of any animal, inflicts unnecessary cruelty upon it, etc., is punishable by imprisonment in a jail for a period not exceeding one year, or by a fine not exceeding two hundred and fifty dollars, or both. A corporation which violates this provision is punishable by fine and is responsible for the knowledge and acts of its agents or servants. Officers are authorized to arrest without a warrant persons who are suspected of being guilty of this act." And finally, there is a most stringent and unusual provision to the effect that when a complaint is made to a court or magistrate and when the complainant believes, and has reasonable cause for believing, that this law is being violated in any particular building or place, and the magistrate or court is satisfied that there is reasonable cause, he may issue a search warrant to search the building." (Adapted. Public statutes, Chap. 297, par. 52.) First rate legal opinion comments as follows: There is, therefore, in Massachusetts, a law applicable to vivisection of the most extreme kind, which would enable any person who could satisfy a court that he has reasonable cause to suspect that cruelty was being practiced in a Massachusetts medical school, or elsewhere, to procure a search warrant to search the premises and discover the animal and the parties cruelly treating it, and to cause the arrest without a warrant of the persons who are suspected of practicing the cruelty. So that this agitation is directed, as, indeed, has many times been acknowledged, against the professional schools, for vivisection is not practiced in any other schools in this commonwealth.

This being so, the question at once arises as to the trustworthy character of the trustees of our educational institutions on the one hand; whether they are so negligent of the duties entrusted to them as to allow such fiendish cruelty to go on as is asserted to occur; and on the other hand, whether the instructors appointed by them, after searching inquiry as to character as well as training, are so callous and unfeeling as the accusations state. In all the years that the hearings have occurred at the Massachusetts State House no evidence has been brought forward proving the existence of such a state of affairs. It may justly, therefore, be supposed that the public confidence in these officials is not misplaced.

Much of the argument against animal experimentation, of late years, has rested upon assertions and implications that the experiments are conducted without anesthetics efficiently used, and while the animal is conscious and suffering. Assertions of this nature, like the description of vivisection already quoted, are absolute, and as I believe, intentional falsehoods. So far as my personal work is concerned or that of the laboratory under my charge, I may say that no experiment, except simple inoculations, has ever been made except under profound anesthesia. I have never seen one done, and I know them to be of the rarest occurrence, only considered at all, when the object to be gained can be reached in no other way.

In other words, the demand that such operations be conducted with all possible precautions to avoid unnecessary suffering is already met, in every institution of which I have personal knowledge or which has been brought to my notice.

I have said publicly many times that if evidence is presented to me or my friends in this matter demonstrating the existence of abuses that the present laws do not fully cover, we will support an active movement for reform. We must have evidence of worth, however. One can hardly be expected to ask for new legislation upon the testimony of an agitated lady near our medical school, who was much troubled by the daily current of beautiful collie dogs taken in every morning — and never coming out again. These were my dogs, who used to run in with me every morning as I rode or drove through the

park, and who never seemed to go out again, because, being the fall, we all went home after dark. I believe it to be possible to assert with truth that the requirements of careful supervision and a minimum of suffering are fulfilled in every institution where the practice of animal experimentation is carried on. Certainly, if this is not so, it is strange that I have never heard of any proof of the existence of the abuse of the power of man over animals in this direction that has not been promptly rebuked. If such abuses do exist there is plenty of law on the statute books to secure their punishment, and it would be my duty and pleasure to take part in the enforcement of these laws.

The Society for the Prevention of Cruelty to Animals finds no difficulty in securing convictions under the present laws in cases of abuse brought to its notice.

The complaint often made is that it is difficult to secure evidence of the abuse of the practice of animal experimentation, because those desiring to secure such evidence cannot get in to the laboratories or demonstration rooms where experimentation is going on.

That the desire of any intelligent person for information on this subject or for admission to any laboratory where this practice goes on has ever been denied, I do not believe. It certainly has not been so in any place with which I am familiar. On the contrary, it is the fact that some of the most prominent agitators against animal experimentation have refused direct invitations to come and see for themselves, and one in particular is on record with the remarkable assertion, "I do not need to go into a laboratory to know what is going on there."

The whole case may be summed up thus: if man's dominion over other animals is justifiable at all, then the use of those animals for the furtherance of his and their well-being is justifiable in the direction of experimentation, as in others. Such use must, however, be surrounded by all safeguards that it shall be merciful and as painless as possible. Such safeguards, those competent to judge have said again and again, are in existence, and no proof to the contrary has been brought forward.

Original Articles.

A STUDY OF AMPUTATIONS OF THE LOWER EXTREMITY.

BY FRED T. MURPHY, M.D. BOSTON.
For the Division of Surgery of the Medical School of Harvard University.

Amputations of the lower extremity, as a class, offer little of technical interest to the operator. They are usually traumatic cases of such extent that the saving of the patient's life is the main question. The operator is apt to consider the immediate result, while to the patient the ultimate usefulness of the stump is of major importance. Generally speaking, a good immediate result means a good end result, but in amputations this may be far from the truth.

When artificial appliances were in the crude state, the principle was taught, "save as much as you can," and to a remarkable degree such is the opinion held at the present day. Observations of numerous failures to obtain a serviceable stump by following this teaching suggested to me the investigation of the relative values of the various methods of amputation of the lower extremity as regards the production of a useful stump.

Through the courtesy of the staff of the Massachusetts General Hospital the hospital records were placed at my disposal, and Dr. J. Collins Warren kindly allowed the use of his name in correspondence with the patients and with the manufacturers of artificial limbs, for both of which favors I am deeply indebted.

Data were obtained from three sources, namely: the hospital records, the patients and the makers of artificial limbs.

In order to get an idea of the type of cases and the immediate results, that is, the results before leaving the hospital, the records of five hundred cases were abstracted. These cases were taken as nearly as possible in consecutive order and include the years from 1889 to 1901 and part of 1888 and 1902, but owing to the irregularity of the diagnoses it was not possible to depend upon the card catalogue, and certain few cases may have been overlooked in going through the individual record books.

The following list of questions was sent to each of these patients who had left the hospital alive, with a note asking them to answer the questions and return them to me in case they were not able to come to the hospital for examination:

"Do you wear an artificial limb? If not, why? How long after the operation was it before the tenderness would allow one to be worn? Can you walk without crutch or cane? Can you do any manual labor? What? Do you ever have pain in the stump? Is the pain localized in the end of the stump? Does the leg draw up with cramps? Has there been any sensation as if the toes were cramped? If so, how long before this sensation wore away? Has the weather any effect on the stump? Does the stump ever swell or discharge? Does the artificial limb cause pain or discomfort? Have you had any operation since the first amputation? Who made the artificial limb? What did it cost? How often has it been necessary to have the limb repaired? About what has been the cost of such repairs? After your experience, what suggestions would you make regarding the treatment of an amputation such as you have had?"

Recognizing the wide experience and ability of the best makers of artificial limbs, another list of questions was sent to eleven of the well-known firms of the East and West. These gentlemen have been more than courteous in their efforts to help me, both by replying by letter and pamphlet and by calling in person. I take this occasion to thank them, and to urge a closer coöperation

between the surgeon and the prosthetician, for it is by this means that the problem will be worked out and the best results given to the patients.

The following table shows the class of cases and the mortality in the hospital:

TABLE OF AMPUTATIONS.

	Total.	Died.
For crush:		
(Single)		
Thigh	66	27
Leg	172	8
Partial foot	32	1
(Double)		
Thigh	1	
Thigh and tibia	11	2
Thigh and partial	1	
Tibia	19	6
Tibia and partial	5	1
Partial	1	
For bad stumps of		
Thigh	11	
Leg	35	1
Partial	6	
For sepsis:		
Thigh	11	4
Leg	4	1
For gangrene:		
Thigh	31	11
Thigh and leg	1	1
Leg	23	12
Partial (double)	1	
For new growth:		
Double thigh	1	1
Thigh	32	5
Leg	12	2
For tuberculosis and osteomyelitis:		
Thigh	17	1
Leg	6	
Partial	1	
	500	84

The general and local conditions in individual cases exerted such an influence upon the result and upon the technic of the operation that statistical comparisons, either as to the immediate results or the mortality, would be impossible and unfair. But certain facts were boldly emphasized. As might be expected, the amputations for new growth did much better, as far as the healing of the stump was concerned, than those done for trauma and gangrene. In general, the immediate results of all the amputations as compared with the perfect healing seen in other classes of clean cases, were most disappointing. Union by first intention was the marked exception rather than the rule. Ordinarily in clean cases three weeks may be taken as a surgical unit of time which represents by a slight addition or subtraction the time of convalescence, but in these amputations it would be hard to fix a limit of time, so persistent were the indolent granulations and sinuses. In many instances the use of bruised tissue for emergency flaps was necessary, and in these cases the failure to obtain satisfactory healing was to be expected, but not infrequently the poor result seemed to be due to the technic rather than to the unavoidable conditions. These failures, with few exceptions, were due to the infection of the clot of blood and serum which had collected beneath the flaps or were caused by the failure to provide a suitable covering for the end of the bone. The skin flap with a circular incision was the one most often used, and it seems to me the least desirable, except in such regions as the lower third of the leg and when demanded by necessity. Certainly, the muscle flaps in the thigh and the upper part of the leg gave much more favorable results than when the skin alone was used.

Unless the soft parts were carefully approximated and held by buried sutures, the drained cases did noticeably better than when the attempt was made to obtain a complete first intention. These attempts not infrequently led to the following sequence: first intention of the skin, about the fourth to sixth day, expression of the blood clot by opening the line of incision, infection causing a sinus or further opening of the incision to pack the cavity, retraction of the flap sometimes resulting in protrusion of the bone followed by reamputation or skin-graft. Where muscle flaps were obtainable, the method of suturing the periosteum over the end of the bone and approximating the muscles and fasciæ by buried or mattrass sutures gave excellent results. There were no instances of osteoplastic flaps except in amputations at the ankle-joint. As a routine, the cases were operated as soon as it was possible to obtain a surgeon, so that no statement can be made as to the relative value of immediate or delayed operation in the traumatic cases. Judging from the records, the shock of amputation *per se* below the upper third of the thigh was not marked.

Except for the question of flaps and drainage, the immediate results of the routine leg and thigh cases have no special interest in connection with this paper. A class of amputations, such as the so-called Syme's, Pirogoff's, Chopart's, Lisfranc's, Hey's, etc., with their modifications, does, however, illustrate certain points which it will be well to bear in mind in considering the ultimate utility of these operations.

There were 44 operations of this class in which the immediate results could be judged. They included 12 tarso-metatarsal amputations, 3 of which were followed by reamputation; 17 mediotarsal amputations with 4 reamputations, and with 1 case which had not healed at the end of nine months and another which went on crutches for eleven months; 7 disarticulations at the ankle-joint, of which 1 was advised to have a reamputation, and another in which sinuses persisted; 8 Pirogoff's with 1 reamputation and 3 cases with faulty position of the fragment of the os calcis. In addition to these more marked failures, these amputations of the foot were generally slow to heal.

Failure to obtain a good result in about 33⅓% is significant.

The opinions of the makers of artificial limbs were in the main remarkably unanimous. Regarding minor details there were differences, and

rarely the position was taken that any stump could be satisfactorily fitted.

In the following comments I have endeavored to express the prevailing idea and that which seems to me to be the most reasonable.

Here, as was the case in considering the immediate results, exceptions may be cited to disprove any statement, but in general, that is, to obtain the greatest benefit to the greatest number, the experience of the makers of artificial limbs supports the following conclusions:

The Lisfranc's, Hey's, and Chopart's and the irregular midtarsal amputations were considered in a single class. The preservation of the attachment of the *tibialis anticus* gives a theoretical advantage to Lisfranc, but practically it is open to the same objections as the others, namely: a weak supporting arch and a tendency to extension of the stump even though the Achilles tendon be divided. Given an ample flap which assures the placing of the scar on the dorsum of the foot so that it will not be irritated by pressure, and a perfect result without extension of the stump, it was held by the makers that these operations were acceptable, but so rarely was this perfect result seen that generally such amputations were condemned. Even under the most favorable conditions, it was questioned whether these amputations gave as strong a supporting leg as a tibial stump. Any appliance, other than a simple cosmetic false foot which offers little or no support, is cumbersome and difficult to fit with comfort to the patient.

Operations of the type of the Syme and the Pirogoff formed the next group to be considered, and they, too, were disapproved. The Syme, or the modification with the lateral flap when perfect, offers simply a peg leg. Displacement of the heel pad so as to bring the cicatrix into bad position had been the general experience. The bone flap of the Pirogoff increases the length of the leg, and with a perfect result makes a smoother stump. Malposition, however, of the bony fragment or of the cicatrix had been the rule. The greatest difficulty had been found in providing a satisfactory apparatus after these operations.

Going above the ankle-joint the opinion was ananimous that the long stumps obtained in amputations through the lower third of the leg were undesirable. Different levels were suggested, varying between the middle of the middle third to the junction of the middle and lower thirds. In inches, lengths between 6 and 10 inches measured from the lower border of the patella were acceptable. The longer stumps have been found to show a tendency to swell at the end, and the greater leverage without material gain in handling the foot increased the liability of play in the socket, thus causing irritation of the anterior border of the tibia. A stump shorter than six inches has been found to decrease the usefulness of the leg by lessening the power of leverage. A tibial stump two inches long was accepted as the minimum which would give a satisfactory bearing for an artificial leg which would preserve the function of the natural knee joint. Amputations necessitating a shorter tibial stump opened the question of sacrificing the knee. The old operation of saving the short tibial stump gives with flexion a good, serviceable, end-bearing but cumbersome leg. As in amputations through the joint, it necessitates a bulky apparatus and in the sitting posture makes one thigh longer than the other. Amputations through the joint were generally considered to possess no advantage over those above the condyles, and to have beside the disadvantage of necessitating a clumsy apparatus and to be liable to irritation over the bony prominences.

Gritti's procedure of placing the patella at the end of the femur was not advised. When successful the end bearing is good, but the bone is apt to be displaced, and even the perfect result is open to the same objections as the other knee joint operations.

Above the knee it was advised that the stump be left as long as possible, provided the condyles of the femur be removed. Measured from the perineal fold, any thigh stump longer than five inches was considered to be satisfactory and useful. Stress was laid on the importance of obtaining a good, not redundant, end pad; the necessity of beveling the bony prominences, such as the anterior border of the tibia, and careful resection after traction of the nerves was emphasized.

In the short leg amputations it was suggested by some that the fibula should be sub-periosteally resected, and in all cases that it be cut off at a higher level than the tibia. "End bearing" was considered as desirable but not at all as an essential.

One hundred and sixteen of these patients were seen and personally examined or followed by letter. Results are considered as "fine" when the patient is able to walk without a cane and to do ordinary manual labor, as "good" when able to walk with a cane or with slight discomfort and to do light work.

In this series there were 35 cases of amputation of the thigh. Seven died without using artificial limbs to any extent, four from sarcoma, two from tuberculosis and one from gangrene. Five have not tried to use artificial limbs, either because the leg could not be obtained or because they are too comfortable on crutches. Nine are "fine" results and are able to do practically the same work as before the injury. Nine cases are classified as "good" results. Three are bad, two being in old men so weak that the uninjured leg will not bear the weight of the body, and one a conical stump in a child who was operated at four years of age. One patient has new bone reforming in the stump after an excision at the hip joint and will ultimately be able to wear an artificial leg. Another has a fine stump without evidence of neuromata or irritation, but thus far has not been able, on account of pain, to use an artificial leg. From these cases no special conclusions could be drawn. Where muscle flaps had been taken, the covering at the end of the

stump seemed much more fitted to stand rough usage than where the skin alone had been used.

Sixty-one cases of leg amputation were followed. Six have died, one of whom, at the time of death, would be classed as a "good" result. Six as yet have no artificial legs, four of whom are waiting to be fitted, one had sloughing of the flaps and the bone still irritates the skin, and one is an old man with a tender adherent flap. Forty are "fine" results and nine are classified as "good."

These tibial amputations illustrated most graphically the suggestions made by the prosthetic ians. The most perfect results were seen in the shorter tibial stumps, that is, about six inches. The long stumps from amputations of the lower third, almost without exception, caused trouble by swelling and from the irritation on the anterior edge of the tibia. Several cases were seen where the too long fibula caused marked tenderness in the end of the stump. The extra leverage above six inches gave no advantage. The shortest tibial stump observed was two and one-half inches with which the patient was able to do active and hard manual labor. On the whole the slight amount of disability caused by the loss of a foot was remarkable. The claim sometimes advanced by manufacturers that shoulder straps for support of the leg are not necessary was not borne out by these cases, as their use was almost universal.

The ten cases of double amputation are tabulated in order that a comparison between the stumps may be more readily seen:

Pirogoff — painful.
Partial — fine.

Pirogoff — fine; patient would much prefer a tibial stump.
Tibia, 4 inch, much the stronger leg.

Chopart — good, but patient wishes it were a tibial amputation.
Middle third of tibia, fine, much the stronger leg.

Tibia, 10 inch, fine.
Tibia, 2.5 inch, fine.

Tibia, 7 inch, fine.
Tibia, 8 inch, fine.

Tibia, 7 inch, fine, considerably the stronger leg.
Tibia, 9 inch, fine.

Tibia, 4.5 inch, fine, much the stronger leg.
Tibia, 10 inch, fine.

Thigh above condyles, fine.
Mid-tibia, fine.

Partial foot, fine.
Middle and lower third tibia, fine.

Mid-thigh, good.
Mid-tibia, good.

With the exception of the last case, who has been fitted with the artificial legs only a short time, these patients with a double amputation have experienced remarkably little discomfort. There are included laborers who do hard work and youngsters who go to school and play ball.

The partial amputations of the foot and those at the ankle-joint are also given in tabulated form:

Syme's, fine.
Syme's, fine.
Syme's, good, but patient would much prefer a short tibial stump.
Syme's, good, but there is bad displacement of heel pad and scar, and patient wants a reamputation.
Syme's (lateral flap), good, but patient would prefer a tibial stump.
Lisfranc's, good, but considerable pain.
Chopart's, fine; walks well but not so strong as a good tibial amputation.
Chopart's, fine.
Chopart's, good, but with apparatus makes a clumsy foot.
Chopart's, fine, but not satisfactory with artificial limb.

A failure of 33⅓% in the immediate results and the unsatisfactory end results must, it seems to me, condemn all of the partial amputations of the foot or at the ankle-joint.

The summary of the replies to the questions which have not been considered in the preceding paragraphs is as follows:

Simple tenderness in the stump prevented the wearing of an artificial limb for from two months to two years. In the majority of cases the stump was ready for the leg in from five to seven months. Intervals of slight pain in the stump was the rule. The pain was rarely localized in the end of the stump, but was referred to the foot. The leg itself was universally reported as being free from cramps, but the absent toes almost as generally were subject to periods of more or less severe discomfort. To a very slight degree the sensation in the toes persisted, usually growing markedly less after about the first year. Opinions regarding the influence of the weather were most variable. In some, extreme cold caused discomfort, while in others heat was to be dreaded, and still another group felt a storm or an east wind. This discomfort, which was experienced by about one third of the patients, was apparently no more severe than is found in the average individual with a "rheumatic tendency." Only in the long tibial stumps or with improperly fitted sockets was there marked swelling or discharge from the stump. Any artificial appliance must of necessity cause some discomfort, but generally speaking the limbs were worn with remarkable ease. Twenty-four cases had undergone some secondary operation after leaving the hospital. Incompleteness in the replies prevents a definite statement regarding the exact character of these operations, but usually they had been of a trivial nature, such as the opening of an abscess or the removal of necrotic bone or neuromata. As "suggestions," nearly all of the patients confined their remarks to the after treatment of the stump. They complained, as did the makers of artificial limbs, that usually no directions were given on leaving the hospital as regards bandaging the stump. If left alone, the soft tissues hypertrophy and become flabby, necessitating later the wearing of a "shrinker" before a socket can be fitted. In order to prevent this the stump should be bathed frequently,

FIG. 1. Disarticulation at ankle-joint. Shows the displacement of the heel-pad "A" and the tender point "B" on the anterior edge of the tibia.

FIG. 3. Pirogoff and 4-inch tibial stump. The short tibial stump is the more useful.

FIG. 2. Tibial stumps, 10 inches and 4½ inches in length. The shorter stump is the more useful.

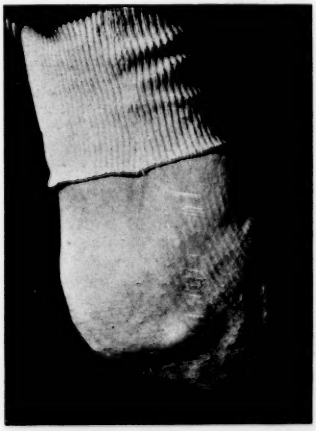


FIG. 4. To show how short a tibial stump can be and yet afford perfect function.

NOTE.—The writer is indebted to Mr. Walter J. Dodd of the Massachusetts General Hospital for the illustrations used in this paper.

FIG. 5. Six-inch tibial stump. Good free end pad. No discomfort. Perfect function. Patient weighs 206 pounds.

FIG. 6. Bad conical stump of thigh.

FIG. 7. X-ray of stump of a tibial amputation, showing bony change caused by constant irritation of the anterior edge of the tibia; also illustrates the common error of leaving the fibula too long.

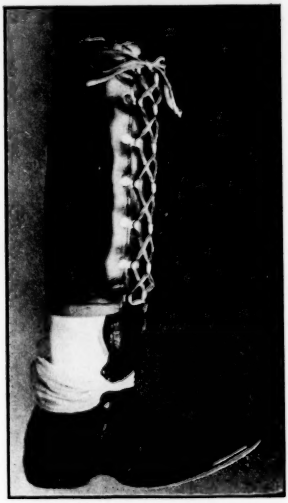


FIG. 8. Cumbersome apparatus seen on Syme's amputation. Compare with Fig. 9.

FIG. 9. Ordinary artificial leg for tibial amputation. For comparison with Fig. 8.

either with cold water or some mild astringent solution, and kept bandaged with flannel under moderate tension so that there will be slight compression, or should be encased in a proper leather support. The cost of the limbs was from $50 to $100. With ordinary use and with a good make of leg, repairs were necessary once or twice a year. Their cost was, as a rule, insignificant. Often the repairs were made by the wearers themselves.

It is not the purpose of this paper to attempt to consider the merits or faults of the various styles and makes of artificial legs, but if it were, I should have great difficulty in condemning wholly any one type. Given a first-class artificial limb, whatever the make may be, and an intelligent patient with a satisfactory stump, and the functional result will be remarkably good. Failure on the part of the patient to practice a proper gait and to endeavor to correct the faults is, it seems to me, more often to blame than is the artificial leg.

The conclusions warranted by these observations are as follows:

Anterior and posterior muscle flaps when obtainable are to be preferred to the circular cuff of skin.

The fibula should be cut off at a higher level than the tibia in leg amputations, and care should be taken to bevel off bony prominences such as the sharp anterior tibial edge.

Suture of the periosteum and approximation of the muscles and fasciæ is desirable.

Drainage of the stump is advised, unless the dead space is obliterated by means of buried sutures.

Partial amputations of the foot or amputations at the ankle-joint, except under unusual conditions, are not as satisfactory as those above the ankle-joint.

Tibial stumps between 6 and 8 inches long are the most serviceable.

Amputations through the knee-joint are inferior to those just above the condyles.

The longer the thigh stump the better, provided the condyles have been removed.

In general, in tibial amputations down to 4 inches and in thigh amputations down to 5 inches, sacrifice bone in order to obtain good muscle flaps.

EXPERIMENTAL DECAPSULATION OF THE KIDNEYS.

BY N. H. GIFFORD, M.D., BOSTON.
From the Laboratory of Surgical Pathology. For the Division of Surgery of the Medical School of Harvard University.

THIS article contains the results of a year's work on the experimental decapsulation of kidneys, performed on animals in the surgical laboratory of the Harvard Medical School, aided by the suggestions of Dr. E. H. Nichols.

Dr. H. A. Johnson, in the *Annals of Surgery* for April, 1903, and Albarran and Bernard, in the Société de Biologie in June, 1902, have published papers bearing on the first part of my work, that of the rabbit series. As my results differ in many respects and there are some additional observations, I take the liberty of presenting this paper.

The experiments have been conducted upon rabbits and dogs.

In each rabbit or dog I have decapsulated one kidney, always the left because it is normally smaller than the right by one fourth to one third and lies more inferiorly, thus giving greater ease of access from lumbar incision. The animals were etherized, the hair clipped, the remaining hair removed by sulphur paste, and the operation performed, as far as possible, under aseptic precautions. In no case, either in rabbits or dogs, have I found the peritoneum so closely adherent over the capsule of the kidney as to be torn in the delivery of the kidney into the wound for decapsulation. After delivery of the kidney the capsule was split along the greater curvature from pole to pole, stripped off by the help of forceps, if necessary, and the kidney returned to its original position in the retro-peritoneal fat. The wound was then closed with deep interrupted, heavy silk sutures, and the animal returned to the pen to be killed after an allotted time had elapsed. The animals were killed by the injection into the lung of from one-eighth to one-fourth grain strychnine sulphate.

The specimen was preserved immediately after removal in Zenker's fluid, by placing the kidney in the fluid, intact, for one hour, and then cross-sectioning into slices, two to four mm. thick. This method prevents slipping or tearing away of the capsule by the knife, as is true in making fresh sections. In all cases the unoperated kidneys were removed at autopsy and preserved in the same manner to be examined as controls.

The rabbit series comprises two, four, six, eight, ten, and thirty-one days and six months after operations.

TWO DAYS: The left kidney, by measurement, is one-third larger than the right. There is a thin layer of blood clot about the kidney.

Microscopically. — In places about and external to the cortex few very young connective tissue cells appear. There are no connective tissue fibrils by Mallory's connective tissue stain. There is moderate congestion of all the vessels and capillaries in the kidney substance. No change in renal epithelium appears.

Microscopically. — The right kidney shows a capsule two to four cells thick.

FOUR DAYS: The left kidney is one-fourth larger than the right. Thin, fibrinous adhesions with little blood clot appear about kidneys.

Microscopically. — A layer of new connective tissue cells appears on the cortex, five to seven cells thick, showing by Mallory's connective tissue stain a few connective tissue fibrils. There are new blood vessels from the cortex and a slight infiltration with polynuclear leucocytes, plasma cells and eosinophiles. The capillaries of the outer cortical zone show slight injection. There is no change in the renal epithelium.

Microscopically. — The right kidney shows a capsule two to four cells thick.

SIX DAYS: The left kidney is one-fourth larger than the right. The blood clot has disappeared. The kidney is rather firmly imbedded.

Microscopically. — There is no injection of the vessels of the kidney substance. A new capsule appears about the kidney, ten to twenty cells thick, rather rich in blood vessels, showing by Mallory's connective tissue stain numerous medium long, well-formed intercellular fibrils. The cells of the outer layer of the new capsule are rich in yellow pigment. There is no change in renal epithelium.

Microscopically. — The right kidney shows a capsule three to five cells thick.

EIGHT DAYS: The left kidney is one-fifth to one-fourth larger than the right. There is no blood clot.

Microscopically. — No injection of the vessels appears. There is a new capsule of connective tissue ten to fifteen cells thick, rather rich in connective tissue fibrils and blood vessels. There is no change in the renal epithelium.

Microscopically. — The right kidney shows a capsule two to five cells thick.

TEN DAYS: The left kidney is one-fourth larger than the right and is firmly anchored. There is no blood clot.

Microscopically. — A new capsule, rather rich in connective tissue fibrils and blood vessels, appears, ten to fifteen cells thick. There is no injection. There is no change in the renal epithelium.

Microscopically. — The right kidney shows a capsule two to four cells thick.

THIRTY-ONE DAYS: The left kidney is slightly larger than the right, and is firmly anchored.

Microscopically. — The vessels are not injected. A new capsule appears, seven to fifteen cells deep, with long connective tissue fibrils in abundance, and a few new blood vessels. There is no change in the renal epithelium.

Microscopically. — The right kidney shows a capsule two to four cells thick.

SIX MONTHS: The left kidney is approximately the same size as the right. The capsule of the left kidney shows a few spots two to three mm. in diameter, yellowish and opaque but not appreciably thick to touch. The remainder of the capsule is transparent like that of the right kidney.

Microscopically. — There is a capsule of connective tissue two to four cells deep, with a few long, connective tissue fibrils closely packed and rather sparsely supplied with blood vessels. Sections through the opaque areas show a capsule four to eight cells deep. Except these slightly thickened areas, whole section of left kidney not different from that of right whose capsule is from two to four cells deep. No change in renal epithelium.

From the above we see that as early as the second day after the operation new connective tissue cells begin to appear in the clot about the decapsulated kidney. On the fourth day connective tissue fibrils begin to be formed, and by the tenth day a new capsule, rich in blood vessels and three to four times normal thickness, surrounds the kidney. That the capsule has been entirely removed by the operation shows in the two-day specimen and also in the three controls which I made, after seeing the article by Johnson in which he claims the impossibility of entirely removing the inner capsule. In the kidney substance there is a rather well marked intertubular congestion up to the fourth or fifth day, but no change in the cells of the blood vessel walls is observed at any time. The tubules and glomeruli remain unchanged.

In the operation when the capsule is split, it immediately draws back and the kidney pops out as if under tension. This is probably due to the congestion caused by putting the renal vessels on stretch and thus narrowing their caliber. This would have more effect on the veins because of their relatively thinner walls. This increase in size, however, persists.

The operated kidneys, as can be seen by the above, are increased in size up to thirty-one days afterwards. At the end of six months, however, they return again to nearly normal size, and at the same time the capsule is but little thicker than normal.

In the dog series sections were made three, eight, and fifteen days after operation on normal animals.

THREE DAYS: The left kidney is one-fourth larger than the right. There is considerable blood clot in the perirenal tissues but the kidney is held fairly well in place.

Microscopically. — There is moderate injection of the subcapsular vessels. There appears a capsule composed of young connective tissue cells, fifteen to twenty-five cells deep, with few rather short connective tissue fibrils and rather rich in new blood vessels. Both the left and right kidneys show areas in cortex of slight increase of connective tissue, including atrophied glomeruli and a few infiltrating lymphoid and plasma cells. There is no change of the renal epithelium.

Microscopically. — The right kidney shows a capsule six to twelve cells thick.

EIGHT DAYS: The left kidney is one-fourth larger than the right. Very little blood clot appears in the neighborhood. The kidney is firmly anchored.

Microscopically. — No injection of vessels appears. The capsule is composed of new connective tissue, ten to twenty cells thick, with medium long, wavy, connective tissue fibrils, and rather rich in newly formed blood vessels. There is no change in the renal epithelium.

Microscopically. — The right kidney shows a capsule six to twelve cells thick.

FIFTEEN DAYS: The left kidney is one-sixth larger than the right.

Microscopically. — There is no injection of the vessels. A new capsule is present composed of connective tissue with a few blood vessels, fifteen to twenty-five cells thick, and with quite num-

erous connective tissue fibrils. The new connective tissue of the capsule connects in places with some new connective tissue, running a short distance into cortex between the tubules. There is no change in the renal epithelium.

Microscopically. — The right kidney shows a capsule seven to fifteen cells thick.

Acting upon the idea that while no definite histological changes might follow the decapsulation of kidneys of normal animals, decapsulation of kidneys showing existing pathological changes might give more fortunate results, in that the conditions present were like those in the clinical cases which have been so successful — I next tried to induce nephritis. I chose nephrolytic serum as the best means of inducing nephritis. The nephrolytic serum was obtained by injecting an emulsion of washed dog's kidney subcutaneously into rabbits at three-day intervals, and at the end of two weeks the rabbits were bled and the serum injected into apparently healthy dogs.

Eight hours: A dog was injected with 0.5 cc. nephrolytic serum. No symptoms resulted. Six days later 2.0 cc. of nephrolytic serum were injected with no symptoms immediately following. On the fifth day after the second injection the dog was reported in convulsions and coma (with diarrhea and vomiting and anuria). Ether was administered and the left kidney decapsulated through the lumbar incision. A wedge-shaped piece of the cortex was removed for examination. After coming out of ether the convulsions and coma persisted, the convulsions becoming more frequent and the dog weaker, until he died eight hours after the conclusion of the operation. Autopsy revealed no gross lesions other than congestion of all the organs.

Microscopically. — The piece removed from the left kidney at the operation shows swelling of the tubular epithelium, with obliteration of the lumen and separation from the basement membrane.

Microscopically. — The decapsulated left kidney shows the capsule is removed completely from two thirds of the surface, being replaced by blood clot. There is marked injection of the intertubular vessels and the larger vessels of the pyramids. The epithelium of the parenchyma is swollen, with solid staining or absent nuclei, and everywhere is torn from the basement membrane. There is no increase of the intertubular connective tissue.

Microscopically. — The right kidney shows a capsule six to ten cells thick. There is less injection than in the left, but the remaining lesions are essentially the same. (Acute Desquamative Nephritis.)

Microscopically. — The rest of the organs show nothing abnormal, except marked injection of the vessels and small areas of hemorrhage into the spleen and the lungs.

Two days: April 29, 1903. Dog injected with 0.5 cc. nephrolytic serum.

May 11, 1903. No symptoms. 0.5 cc. nephrolytic serum injected.

June 11, 1903. No symptoms. 1.0 cc. nephrolytic serum injected.

June 19, 1903. No symptoms. 0.5 cc. nephrolytic serum injected.

July 21, 1903. No symptoms. 1.0 cc. nephrolytic serum injected.

Sept. 24, 1903. The dog was reported sick, frothing at the mouth and in convulsions. One-half grain morphine sulphate was administered followed by ether and operation. The left kidney was decapsulated, and the right kidney removed through the lumbar incision. The dog appeared perfectly well following the operation with no more convulsions. At the end of forty-eight hours the dog was killed with three-eighths grain strychnine sulphate. The left kidney was one and one-half times as large as right, which had been removed at the time of the operation.

Microscopically. — The left kidney shows that the capsule has been entirely removed over half the convexity and is replaced by blood clot containing at all edges a few new connective tissue cells. At the edge of the denuded cortex are a few short, thick, wavy, connective tissue fibrils. In the cortex are areas of intertubular infiltration of transitional plasma cells, varying in size from that of a glomerulus to five or six times as large. These infiltrating cells are in active mitosis, and the glomeruli and tubules included are degenerating. There are a few areas of slight increase of connective tissue in the cortex, including atrophied glomeruli. The tubules appear rather widely separated, and the tubules themselves are dilated and contain circular reticulum.

Microscopically. — The right kidney shows a capsule three to five cells thick, rich in long, thin, closely packed, connective tissue fibrils. The description of the cortex is the same as in the operated left kidney above.

Diagnosis. — Acute non-suppurative interstitial nephritis.

Eight days: A dog was injected with 0.5 cc. nephrolytic serum. One month later the left kidney was decapsulated through the lumbar incision, and a wedge-shaped piece of the cortex removed for examination at the time of the operation. The dog was killed eight days after the operation.

Microscopically. — The piece of the left kidney removed at the time of operation shows capsule absent.

Microscopically. — The left kidney shows a capsule fifteen to thirty cells thick, composed of new connective tissue cells with long, thin fibrils between, and without are some areas of blood clot undergoing organization. The cortex shows no injection of the blood vessels. In the cortex are areas of lymphoid and plasma cell infiltration, slightly larger than the glomeruli, rather more numerous towards the medulla, and with slight increase of connective tissue in and about these areas. The glomeruli included show slight to marked atrophy with fibrous changes. There is no general increase of the intertubular connective tissue. The epithelium of the tubules is normal,

Microscopically. — The right kidney shows a capsule ten to fifteen cells thick. The cortex and medulla show the same condition as in the left.

I then produced kidney infarction in dogs in two cases, in one of which I decapsulated the kidney and in the other, I did not.

FOUR DAYS (unoperated): Through the abdominal incision the left renal artery and left ureter were tied off. The animal was killed four days later.

Microscopically. — The left kidney shows capsular and peri-capsular connective tissue, much thickened, containing fibrin, red blood globules, polymorphonuclear leucocytes and new connective tissue cells. The capsule is thirty to forty cells thick, with fairly short, thick, wavy, connective tissue fibrils, both in towards and into cortex and outside of original capsule. There is a moderate increase of the intertubular connective tissue in the outer zone of the cortex. The cortex itself shows the epithelium to be necrotic, with polymorphonuclear leucocytes within and without cells. In medulla are a few areas of apparently normal epithelium. The vessels are everywhere injected.

Microscopically. — The right kidney shows a capsule seven to twelve cells thick. The section of the kidney substance is in every respect normal.

SIX DAYS (operated): The left renal artery was tied off through the left abdominal incision and the kidney decapsulated. The animal was killed six days later. The left kidney was slightly smaller than the right.

Microscopically. — The left kidney shows a capsule twenty to thirty cells thick, composed of new connective tissue cells with medium, long, wavy, connective tissue fibrils in between them, and containing in their meshes numerous red blood globules. All the kidney substance, except one fourth about the hilus, is infarcted. Beneath the new capsule a few young connective tissue cells extend in about the intertubular vessels.

Microscopically. — The right kidney shows a capsule seven to ten cells thick. There is no increase of the intertubular connective tissue. The epithelium and glomeruli are normal.

Finally, I removed the left kidney from a dog, and five and one-half weeks later decapsulated the right through the lumbar incision. At the end of eight days the dog was killed. The right kidney at time of operation was one and one-half times size of the left, which had been removed.

Microscopically. — The right kidney shows a capsule ten to twenty cells thick, with new connective tissue cells and medium long, fairly thick and slightly wavy connective tissue fibrils. Fairly numerous blood vessels appear in it. The intertubular blood vessels and the connective tissue are unchanged. The glomeruli and tubular epithelium appear normal.

From the dog series I find that, after decapsulation of the kidneys of normal dogs, of dogs after nephrolytic serum with the nephritis apparently induced thereby, and after the decapsulation of infarcted kidneys of dogs, and of kidneys of dogs with additional work thrown upon them by the removal of the kidney of the other side, the same results obtain as in the rabbit series. There are no new anastomosing vessels between the capsule and the cortex. Up to two to three days there may be a rather marked cortical injection. A new capsule begins to be laid down by the tenth day. There is no change in the kidney epithelium or the glomeruli following the decapsulation. The kidney is increased in size immediately following the operation.

SUMMARY.

Following the decapsulation of kidneys in rabbits, in normal dogs, in dogs with induced nephritis, in dogs with infarcted kidneys, and in dogs with normal kidneys but with additional work thrown upon them I find the following conditions:

1. In all my cases of two days and under and in my controls the entire thickness of the capsule had been removed over two thirds of the surface by the operation of decapsulation.

2. There is a certain amount of intracapsular tension in undecapsulated kidneys, normal or with nephritis, as shown on removal of capsule.

3. There is an immediate increase in size of decapsulated kidneys persisting up to one month at least; afterwards, a decrease to approximately normal size complete at end of six months.

4. There is congestion, moderate in degree, most marked in the intertubular blood vessels in cortex, lasting three to five days after the operation.

5. No histological change in the renal epithelium follows the operation of decapsulation of kidneys.

6. A new capsule, very vascular, at first, two to four times thickness of old, is well marked at end of eight days. At end of six months it returns to approximately the normal thickness and vascularity. The new capsule arises chiefly from the connective tissue cells of the intertubular connective tissue, but in part from the retroperitoneal connective tissue which is present in the new bed of the kidney.

7. No new vessels are formed which anastomose with those of the kidney.

8. The increase in size is due primarily to the increase in blood supply, possibly resulting from the removal of the capsule.

FUNCTIONAL ALBUMINURIA, WITH A REPORT OF A CASE.[1]

BY J. BERGEN OGDEN, M.D., BOSTON.

DURING the past few months the subject of so-called functional albuminuria has once more been brought to the notice of the medical world, through the somewhat extended and very instructive discussion which took place before the Medical Society of London on Dec. 14, 1903. It is not my purpose, this evening, to consider this subject in its entirety, but rather to emphasize

[1] Read before the Harvard Medical Society of New York, May 28, 1904.

some of the points brought out by our English contemporaries, and to call to your attention a few of the most important features of functional albuminuria, — important because of their relation to the prognosis and treatment of this phenomenon.

A word in regard to the names given to this condition: It has been variously termed functional, cyclical, physiological, postural, dietetic, albuminuria of adolescence, and albuminuria in the apparently healthy. We have no knowledge of the pathology of the condition, so that we are obliged to content ourselves with a name which implies very little and which is vague. The term "functional," which was introduced by Dr. Pavy and which he still retains, is probably most commonly used, and I believe it is the most satisfactory name that we now have for the albuminuria of the healthy person. West [2] and Broadbent [3] are opposed to the use of the term "physiological," since they believe that an albuminuria can never be physiological. Broadbent favors the term "postural," because the condition is always dependent to some extent upon the position of the individual; in other words, when the person is in the upright position the urine contains a good amount of albumin, but when he is recumbent, the urine is free or nearly free from albumin.

Functional albuminuria is a condition in which albumin is generally absent from the urine on rising in the morning. After breakfast, or before, depending upon the activity of the individual, albumin appears, and the quantity usually increases as the day advances, up to a point where the amount remains fairly constant for the remainder of the day or to the time of retiring at night. In some cases, there is considerable fluctuation in the quantity of albumin at different times of the day, or active period, as will be seen in the case that I am to report.

The condition is most common among boys under the age of twenty. Because of its frequency during the greatest period of growth and development, the term "albuminuria of adolescence" has been quite appropriately applied. In these cases there is generally an absence of organic lesions, the persons apparently being in perfect health. The albumin in the urine is almost invariably found by either the insurance examiner or the family physician during his routine physical examination; occasionally by the person himself, in order to satisfy a curiosity.

There are apparently two important elements which enter into the production of an albuminuria at one time in the twenty-four hours and not at another: (1) Muscular activity, and (2) the ingestion of food. We know that the albumin makes its appearance as soon as muscular exercise begins; we also know that in most instances the amount of albumin in the urine increases after a meal, whether the food be rich in proteid or consist almost entirely of carbohydrates, in contradistinction to the views of Senator, Grainger Stewart, and others who have held that an albuminuria follows the ingestion of food rich in albumin. Dr. Pavy finds, however, that the diet does not play as important a part as exercise, and particularly excessive exercise. Over brain work is another important factor in the production of a functional albuminuria (Pavy).

We are at once confronted with the question of the manner in which exercise and the diet influence an albuminuria in these cases. It is probably connected in some way with the circulatory system, either through an increase in arterial tension, an undue permeability of the walls of the blood vessels in the glomeruli of the kidney, or a cardio-vascular instability as pointed out by Sir Broadbent.[4] Drs. Pavy and Armstrong [5] have each observed a violent cardiac impulse in these cases, and Dr. Broadbent states that in his experience it is the impulse of the right ventricle which is forcible, the apex beat being weak. The contrast between a weak apex beat and the left ventricle sounds, and the powerful right ventricle impulse and its loud sounds has been found by Broadbent to be constant in these cases. Another phenomenon pointed out by the same observer is that the second sound of the heart is reduplicated when the patient lies down.

The observations of these eminent authorities are sufficient to lead us to look to the circulatory system for the fundamental cause of functional albuminuria. We know that exercise, the ingestion of food, mental excitement, cold baths, and the like, result in an increase in cardiac activity and work, and probably, also, an increase in arterial tension. We are, however, still in ignorance of the condition of the blood vessels of the kidney, which will allow the passage of albumin into the urine of a person, whose kidneys are otherwise in apparently a healthy state.

N. F., a boy of nineteen years, was born in Brooklyn of Norwegian parentage, and has lived the greater part of his life in the outskirts of that city. For the past nine months he has been employed as a laboratory assistant.

Family history. — Mother and father living. His mother has had several attacks of what have been called kidney trouble. His father is said to have some affection of the heart. He has two brothers, both of whom are well.

Habits. — His habits are excellent. No history of any venereal trouble.

Past history. — Pneumonia when three, and measles when seven years of age. At the age of ten he was vaccinated; this was followed by suppuration of the arm and considerable toxemia, which kept him in bed for several weeks. Nine months ago, after a winter of hard study in high school, he had grip and was in bed for about one week. His health has otherwise been good.

Physical examination. — Well developed and fairly nourished. General appearance good. The heart was not enlarged and no murmurs could be made out. The precordial impulse was quite marked; the apex beat was very strong. Pulse 75, regular, and of good

[2] Lancet, Jan. 16, 1904, p. 143.
[3] British Medical Journal, Jan. 2, 1904, p. 5.
[4] British Medical Journal, Jan. 2, 1904.
[5] Ibid.

strength and volume. He was rather excitable. During periods of excitability his face was flushed and there were rather marked visible pulsations in the temporal and carotid arteries.

Present history. — Early in September, 1903, out of curiosity, he examined his urine for albumin and found that it was present to the extent of a very slight trace. My attention was called to his discovery, whereupon I examined the sediment with the following results: An occasional hyaline and granular cast with blood globules and renal cells adherent. An occasional free blood globule and renal cell. Numerous primary and secondary crystals of calcium oxalate.

An investigation was then started to learn the cause of the oxaluria, which seemed the most probable cause of the renal disturbance. Upon inquiry as to diet and habits of living, I found that he had been using for several years a " root beer " as a table drink, because of poor water facilities in the section of the city in which he lived. This beer was made from the preparation known as " Hire's Root Beer Extract," and was prepared by the addition of sugar, yeast and water, after which the mixture was allowed to ferment. The bottles were then kept in a cool place and one was opened as it was needed. The use of this drink was forthwith abandoned, and on Sept. 23, 1903, about ten days after the last " beer " had been taken, the whole amount of urine for twenty-four hours was examined with the following result: Twenty-four-hour quantity: 902 cc.; color, slightly high; reaction, strongly acid; specific gravity, 1,029; albumin, very slight trace; sugar and bile absent; uric acid and indoxyl, both relatively much increased; urea, 2.77%, making a total of 25.09 grams in twenty-four hours. Sediment: Occasional granular and brown granular cast with renal cells and blood adherent. Occasional free blood globule and free renal cell. A large excess of mucin and numerous secondary crystals of calcium oxalate.

The patient was then advised to drink a larger quantity of water during each twenty-four hours and was given a tonic consisting of iron, quinine and strychnine, which resulted in an improvement of the appetite, and general condition.

Another twenty-four-hour quantity was collected on Oct. 15, 1903, the analysis of which gave the following: Total quantity in twenty-four hours, 1,220 cc.; color, normal; reaction, strongly acid; specific gravity, 1,025; the uric acid and indoxyl still relatively increased; albumin, slightest possible trace; bile and sugar, absent; urea, 2.08 present or 25.38 grams in twenty-four hours. Sediment: Occasional hyaline and granular cast with renal cells adherent. Rarely a blood globule and an occasional renal cell. An excess of mucin, and an occasional primary and secondary crystal of calcium oxalate.

All treatment was then stopped with the exception of the ingestion of plenty of water. Further systematic examinations of the urine were not thought necessary, but about once a month tests for albumin were made, and amounts varying from the *slightest possible trace* to a *slight trace* were invariably found. In December, 1903, although the albumin persisted, the sediment was found to be free from casts and other formed renal elements, and calcium oxalate crystals were absent. In January, 1904, a very thorough examination of the sediment failed to reveal the presence of any renal elements or an oxaluria, although the specimen contained a very slight trace of albumin. Still another specimen examined in February, 1904, gave the same result as those during the two previous months.

I had already become convinced of the fact that the albuminuria was dependent on something besides a disturbance or disease of the kidneys, since renal casts, renal cells, and blood could not be found during prolonged microscopic examinations of both centrifugalized and gravity sediments. Furthermore, that the general condition of the patient and the absence of physical or clinical signs did not point to any pathological changes in the kidneys. There was also no evidence of any local disease of the urinary tract to account for the albuminuria.

A complete quantitative analysis of the urine on March 2, 1904, gave the following: Quantity in twenty-four hours, 1,660 cc.; color, slightly pale; reaction, acid; specific gravity, 1,016; albumin, very slight trace; bile pigments and sugar, absent. Sediment: Rarely a blood globule. A few spermatozoa and a slight excess of neck of bladder cells. No casts could be found. Urea, 33.53 grams; uric acid, 0.68 gram; phosphoric acid, 1.31 grams; sodium chloride, 14.44 grams; preformed sulphates, 3.07 grams; ethereal sulphates, 0.083 gram; albumin, too slight to accurately quantitate.

This examination furnished no adequate cause of the albuminuria, the exceedingly slight neck of bladder irritation being insignificant. The output of uric acid was found to be somewhat excessive, while the excretion of total phosphoric acid was about one half the average normal. All of the other solid constituents were being eliminated in normal quantities.

A noticeable feature of the case was the varying amounts of albumin at different times of day, and it seemed to me important to determine the degree of variation by the examination of hourly specimens. It seemed also advisable to determine the effect of exercise and diet on the output of the albumin.

March 5, 1904. CHART I.

Time.	Color.	Sp. Gr.	Urea %	Uric Acid.	Albumin.[6]	Diet.	Exercise.	Remarks.
6.30 A.M.	N	1,023	2.08	Not incr.	Absent	Breakfast from 7.10 to 7.30: Sandwiches, about 300 grams; 2 glasses of milk, 1 soft-boiled egg.	At 7.30 walked about ½ mile. After 8.30 active in laboratory until 1 P.M.	Arose at 6.30 A.M.
7.30 ,,	N	1,022	1.64	Sl. ,,	Slightest possible trace			
8.30 ,,	N	1,022	2.14	,,	Very slight trace			
9.30 ,,	N	1,019	2.21	,,	,, ,, ,,			
10.30 ,,	N	1,022	2.77	,,	Slight trace, 0.017%			
11.30 ,,	N	1,025	2.65	Sl. ,,	,, ,, 0.017%			
12.30 P.M.	N	1,021	2.20	Sl. ,,	Slightest possible trace			
1.30 ,,	N	1,024	2.77	Sl. ,,	Very slight trace	Luncheon from 1 to 2. Cornbeef sandwiches, about 330 grams.	From 1 to 2 P.M. sat quietly. From 2 to 5.30 active in laboratory. From 5.30 to 6.30 walked about ½ mile and active.	
2.30 ,,	N	1,026	2.77	Sl. ,,	,, ,, ,,			
3.30 ,,	N	1,025	3.21	Sl. ,,	Slight trace, 0.017%			
4.30 ,,	N	1,018	2.14	,,	Very slight trace			
5.30 ,,	Slt. P'le	1,018	1.77	,,	Slightest possible trace			
6.30 ,,	N	1,021	1.89	,,	,, ,, ,,	Dinner from 6.45 to 7.20 P.M. Cornbeef sandwiches, about 300 grams.	Active from 7.30 to 10.30 P.M.	Retired at 10.30 P.M.
7.30 ,,	N	1,023	1.70	Not ,,	Very slight trace ,,			
8.30 ,,	N	1,024	2.27	,,	Slight trace, 0.017%			
10.30 ,,	N	1,022	2.14	,,	Very slight trace			

[6] Figures given only when sufficient albumin to quantitate.

March 6, 1904 (Sunday). CHART II.

Time.	Color.	Sp. Gr.	Urea %	Uric Acid.	Albumin.[6]	Diet.	Exercise.	Remarks.
5.00 A.M.	N	1,021	2.14	Sl. incr.	Absent	Breakfast from 8 to 8.30.: Sandwiches, about 300 grams; rice pancakes, about 50 grams. Dinner at 1.30: Pot roast with potatoes; prunes with milk.	At 8.30 started on 1¼ mile walk. Quiet until 12. Active from 12 to 1.30.	Arose at 7.30 A.M.
6.10 "	N	1,020	1.83	Not "	"			
7.00 "	N	1,019	1.51	Not "	"			
8.00 "	N	1,018	1.71	"	Slightest possible trace			
9.00 "	N	1,021	2.14	"	Very slight trace			
1.30 P.M.	N	1,020	2.27	"	" "			
10.20 "	N	1,025	2.71	"	Trace, 0.025%			
						Luncheon at 6.30: Roast beef and cheese sandwiches, about 330 grams.	Quiet from 1.30 to 7.15. At 7.15 started on 1¼ mile walk. At 9.30 returned, walking 1¼ miles.	Retired at 10.20 P.M.

March 7, 1904 (Monday). CHART III.

Time.	Color.	Sp. Gr.	Urea %	Uric Acid.	Albumin.[6]	Diet.	Exercise.	Remarks.
7.00 A.M.	N	1,029	3.40	Incr.	Slightest possible trace	Breakfast from 7.15 to 7.30: Meat sandwiches, about 330 grams; 2 glasses milk, 1 boiled egg. Luncheon from 1 to 2 P.M.: Sandwiches, about 330 grams; meat and cheese.	Active exercise from 7.30 to 8.30 A.M. Moderately active from 8.30 to 1 P.M. Rested from 1 to 2 P.M. Moderately active from 2 to 5.30 P.M.	Arose at 6.30 A.M.
8.30 "	N	1,026	2.71	M "	Trace, 0.033%			
9.40 "	N	1,021	2.77	Sl. "	Slight trace			
10.50 "	N	1,022	2.90	"	Very slight trace			
11.50 "	N	1,023	3.03	"	Slight trace			
1.35 P.M.	N	1,024	2.77	"	Very slight trace			
2.35 "	N	1,026	3.15	"	Trace, 0.025%			
3.35 "	N	1,026	3.68	"	" 0.033%			
5.00 "	N	1,024	3.47	"	Very slight trace			

March 9, 1904. CHART IV.

Time.	Color.	Sp. Gr.	Urea %	Uric Acid.	Albumin.[6]	Diet.	Exercise.	Remarks.
6.30 A.M.	N	1,024	2.52	Incr.	Absent	Breakfast from 7.15 to 7.30: Meat sandwiches, about 330 grams; 2 glasses milk. Luncheon from 1 to 1.20: Meat and cheese sandwiches, about 300 grams. Dinner from 6.45 to 7.10: Meat sandwich with vegetables and milk. Crackers and milk at 10.55 P.M.	Active from 7.30 to 8.30 A.M. Moderately active from 8.30 to 1. Rested from 1 to 2. Moderately active from 2 to 5.30. Active from 5.30 to 6.30. Between 7 and 8 walked 1½ miles. Between 10 and 10.45 walked 1½ miles.	Arose at 6.30 A.M.
7.30 "	N	1,022	1.89	"	Very slight trace			
8.30 "	N	1,021	2.27	"	" " "			
9.30 "	N	1,020	2.52	"	" " "			
10.40 "	N	1,023	2.77	"	" " "			
11.35 "	N	1,023	2.65	Sl. "	" " "			
12.40 P.M.	N	1,020	2.40	Not "	Slightest possible trace			
1.30 "	N	1,021	2.40	"	" " "			
2.45 "	N	1,019	2.27	"	Very slight trace			
3.45 "	N	1,018	2.52	"	" " "			
4.30 "	N	1,022	3.15	"	" " "			
5.30 "	N	1,023	3.15	"	Slight trace			
6.30 "	N	1,023	3.15	"	" "			
7.30 "	N	1,024	3.28	"	Slightest possible trace			
8.00 "	N	1,024	3.15	Not "	Very slight trace			
10.30 "	N	1,021	2.52	"	Slightest possible trace			
11.00 "	N	1,026	2.77	"	Trace [7]			Retired at 11.30 P.M.
11.25 "	N	1,024	2.40	"	Slight trace			

[7] Not sufficient urine for quantitative.

March 16, 1904. CHART V.

Time.	Color.	Sp. Gr.	Urea %	Uric Acid.	Albumin.[6]	Diet.	Exercise.	Remarks.
6.30 A.M.	N	1,027	2.96	Incr.	Absent	Breakfast from 7.10 to 7.30 A.M.: Meat sandwiches, milk and 1 boiled egg. No luncheon. Dinner from 6.45 to 7.05 P.M.: Cornbeef sandwiches, about 330 grams; milk.	Active from 7.30 to 8.30 A.M. Moderately active from 8.30 to 1. Walked between 1 and 1.30 P.M. Rested from 1.30 to 2 P.M. Moderately active from 2 to 5.30 P.M. Active from 5.30 to 6.30 P.M. Active from 7.05 to 12 P.M.	Arose at 6.30 A.M.
7.30 "	N	1,026	2.40	"	Slight trace			
8.30 "	N	1,026	3.10	"	Trace, 0.025%			
9.40 "	N	1,021	2.77	"	Slight trace			
10.30 "	N	1,024	3.21	"	" "			
11.30 "	N	1,023	3.15	"	Very slight trace			
12.30 P.M.	N	1,025	3.10	"	" " "			
1.25 "	N	1,024	2.96	"	Slight trace			
2.35 "	N	1,024	3.03	"	Very slight trace			
3.30 "	N	1,024	3.28	"	Slight trace			
4.30 "	N	1,025	3.21	"	" "			
5.30 "	N	1,025	3.10	"	" "			
6.40 "	N	1,028	3.54	"	Trace, 0.025%			
7.05 "	N	1,028	3.03	"	Very slight trace			
12.00 "	N	1,023	2.90	"	Slight trace			Retired at 12 P.M.

March 18, 1904. CHART VI.

Time.	Color.	Sp. Gr.	Urea %	Uric Acid.	Albumin.[6]	Diet.	Exercise.	Remarks.
6.45 A.M.	Pale	1,017	1.84	Not incr.	Absent	Breakfast at 7.15 to 7.30: Beef sandwiches and milk. Luncheon at 1.15 to 1.30 P.M.: Meat and cheese sandwiches. Dinner from 6.45 to 7.15 P.M.: Roast beef, vegetables and milk.	Active exercise from 7.30 to 8.30 A.M. Moderately active from 8.30 to 12.15. Was lying down from 12.15 P.M. to 4.10 P.M. in cool room. Moderately active from 4.10 to 5.30 P.M. Active exercise from 5.30 to 6.30 P.M.	Arose at 6.45 A.M.
7.30 "	N	1,020	1.51	Not "	"			
8.45 "	N	1,021	2.02	"	Trace, 0.033%			
9.50 "	N	1,020	1.77	"	Slightest possible trace			
11.10 "	N	1,021	2.14	"	Very slight trace			
12.10 P.M.	Pale	1,020	1.89	Sl. "	Slightest possible trace			
1.10 "	Pale	1,012	1.01	Not "	Absent			
2.15 "	Pale	1,019	1.26	Sl. "	"			
3.10 "	N	1,025	2.40	Sl. "	"			
4.10 "	N	1,021	2.02	Sl. "	Slightest possible trace			
5.30 "	N	1,018	2.40	"	Slight trace			
7.10 "	N	1,021	2.46	Not "	"			
8.45 "	N	1,024	2.02		Trace, 0.05%.			

[6] Figures given only when sufficient albumin to quantitate.

In March Mr. F. decided that he would try a change of occupation which would give him a greater amount of out-of-door exercise. Accordingly, about the 20th of the month, he took up carpenter work. Within one month he had gained about 10 pounds in weight, and was feeling very much better in every way than when he was confined to the work of the laboratory. I was naturally curious to know the effect of the unusual amount of exercise upon his urine. An analysis on April 23 gave the following results: Total amount of urine, 1,200 cc.; color, high; specific gravity, 1,029; reaction, strongly acid; urea, 2.4% or a total of 28.8 grams in twenty-four hours; uric acid, 0.58 gram in twenty-four hours; albumin, a very slight trace. Sediment: Rarely a blood globule. No casts or other formed elements which were significant.

On April 27 he made an effort to save hourly specimens, but he found it impossible. He, however, saved a number of samples, a record of which is given in Chart VII.

— from 12.15 to 4.10. This resulted in a complete disappearance of the albumin from the urine of that period.

The amount of albumin was, of course, somewhat dependent on the concentration of the specimen, but the charts show that in the majority of instances the specific gravity was in the neighborhood of 1,021, the extremes being 1,012 and 1,029. The percentage of urea varied between 1.01 and 3.68, the average for each day being generally above 2%. The qualitative tests for uric acid usually showed a relative excess, but in the quantitative determination, the quantity did not exceed 0.68 gram in twenty-four hours, — a moderate absolute excess.

The diet was, if anything, a little low for a growing boy, and there was lack of variety in the food, but what was taken was substantial,

CHART VII.

April 27, 1904. Total quantity for 24 hours, 1,140 cc.

Time.	Color.	Sp. Gr.	Urea %	Uric Acid.	Albumin.[6]	Diet.	Exercise.	Remarks.
5.50 A.M. to 11.10 A.M.	N	1,026	2.4	Incr.	Very slight trace			
11.10 A.M. to 5.00 P.M.	H	1,028	3.4	,,	,, ,, ,,			
5.00 P.M. to 6.05 P.M.	H	1.029	3.15	,,	Slight trace	No record.	No record.	
6.05 P.M. to 12.20 A.M.	N	1,024	2.9	,,	Very slight trace			
12.20 A.M. to 5.50 A.M.	N	1,024	3.4	,,	Slightest possible trace			

[6] Figures given only when sufficient albumin to quantitate.

Although we are unable to compare this chart with the preceding ones, because of the length of time between the individual specimens, it is plainly evident that the albuminuria was no more marked than six weeks before; indeed, the chart would, if anything, indicate less albumin than when the earlier observations were made.

We have in this case what I consider a fairly typical instance of functional albuminuria. The boy was apparently in every way healthy. Aside from a neurotic temperament, the albumin in his urine was the only thing to attract attention. The urine was generally free from albumin on rising in the morning. The amount then rose to a maximum of 0.05% in one instance (Chart VI). A study of the charts shows that the quantity of albumin was usually small, the fluctuation in quantity being largely due to the amount of exercise taken, and also, to a less extent, to the intake of food, irrespective of its quality or quantity. There was a lack of uniformity in the fluctuation. Generally, the largest amount of albumin was found in the evening or after he had reached home and had had his dinner; this was, however, not invariable, for in a few instances the quantity was no larger than at other times in the day. The experiments tried and recorded in charts V and VI are instructive. On one occasion (Chart V) no luncheon was taken but he remained active; the amount of albumin was apparently not affected. On another day (Chart VI) he was requested to lie down for four hours, and was apparently all that he required to maintain his weight and strength.

For the nine months previous to March 20, the exercise which he took was never excessive or violent. It consisted of walking at an average pace. In the laboratory he was on his feet the greater part of the time, standing or walking about the room. He was not obliged to do heavy work of any kind. After March 20 he had violent exercise and hard work, and yet the albuminuria was no more marked because of the change of occupation.

The proteid in the urine of this case consisted almost entirely of serum albumin. Repeated tests were made for globulin and for albumoses, but always with negative results. There was, however, a minute trace of nucleo-albumin in each of the samples tested; the amount was so small that I believe that we can disregard it.

A good deal of interest is attached to the relation between the renal disturbance and the oxaluria discovered in September, 1903, and the use of the "root beer." I was convinced that the very mild disturbance of the kidneys was in all probability due to the mechanical action of the crystals of calcium oxalate, for as soon as the oxaluria had disappeared the irritation of the kidneys was gone. I was inclined to suspect the "root beer" as the cause of the oxaluria, because of the number of roots and herbs which the preparation is supposed to contain. "Hire's Root Beer Extract" is supposed to be made

from hops, juniper berries, pipsissewa, sarsaparilla, spikenard, etc. The fermented preparation, when ready for use, was found to have a strongly acid reaction, and an acrid and sweetish taste. Microscopic examination of the deposit in the bottle showed the following: Starch and vegetable cells, spores, a little oil and much amorphous matter; numerous needles, plates and prisms; numerous octahedral crystals resembling those of calcium oxalate. I made an effort to quantitate the oxalic acid in the beverage, but for some reason I was not successful, and this led me to suspect that the octahedral crystals were perhaps not calcium oxalate, but rather a crystalline glucoside from the sarsaparilla or some of the other vegetable constituents of the beer. I have not yet been able to satisfy myself of the nature of these crystals.

The fact remains that there was some relation between the ingestion of the root beer and the oxaluria, either through an excess of oxalic acid in the beverage, or through an abnormal degree of intestinal fermentation set up by the beer. In this connection Simon [5] mentions having seen an albuminuria follow free indulgence in root beer, but he makes no reference to a coexisting oxaluria. I have not succeeded in finding any mention of similar instances of the effect of the free use of this beverage.

The root beer had been used a number of years by Mr. F., and we naturally are confronted with the question of the amount and extent of the damage to the kidneys by the long continued use of the preparation. From the fact that the slight irritation of the kidneys cleared up in about four months, as was manifest by the disappearance of casts and the other formed renal elements, I feel quite certain that any damage that might have been produced by the use of this beverage had been fully repaired, for if such were not the case, with the amount of albumin found, we would be very certain to find casts at some time, and yet no casts could be detected during a number of thorough microscopic examinations which have been made since October, 1903. I therefore believe that we can eliminate the possibility of an incipient chronic disease of the kidneys in this case.

The prognosis in these cases is favorable in the great majority of instances. Broadbent states that he has never known postural albuminuria to resist treatment or to develop into actual renal disease. Pavy has watched cases for upward of fifteen years, and he is satisfied that functional albuminuria must be regarded as something besides an incipient stage of organic renal disease.

The treatment is simple, and the reverse of what is ordinarily considered suitable in renal disease. The treatment that is usually required is good, simple food, fresh air, and vigorous exercise. Tonics, such as iron, arsenic, quinine and strychnine, are useful in many of these cases. Dr. Broadbent has emphasized one important point, *i. e.*, that if there has been an error in diagnosis and the patient is treated for renal disease by giving a milk diet, protecting from cold and forbidding exercise, he will probably go from bad to worse; he has met with several instances of confirmed nervous valitudinarianism, apparently attributable to this error in diagnosis during the early life of the individual.

[5] Clinical Diagnosis, 4th edition, p. 407.

COAGULATION-TIME OF THE BLOOD.

A COMPARISON BETWEEN THE WRIGHT AND THE BRODIE-RUSSELL INSTRUMENTS, BASED UPON SIX HUNDRED OBSERVATIONS.

BY F. T. MURPHY, M.D., AND A. H. GOULD, M.D., BOSTON.

For the Division of Surgery of the Medical School of Harvard University.

THE coagulation-time of the blood is the interval which elapses between the moment of the withdrawal of the blood from the body and the moment when the blood coagulates. To determine this interval for clinical purposes, five methods are used: (1) The simplest procedure is still extensively employed, and requires merely that a drop of blood be placed upon a clean glass slide. The consistency of the blood is periodically tested by moving the drop with a needle. When the blood becomes gelatinous and fibrin shreds are thus demonstrable, coagulation has taken place. This is plainly crude technic. It cannot be relied upon to indicate a delayed coagulation, because of the rapid evaporation which occurs, upon subjecting the drop to the direct action of the air. (2) A decided improvement upon the old method just described is the microscopic examination of the blood. A fresh drop is placed upon a slide and covered with a cover glass. The blood is watched with the microscope until delicate fibrinous processes make their appearance. The recognition of the first shreds of fibrin is said to mark the end of the coagulation-time; but, since these shreds do not appear simultaneously in all parts of the drop, the method is inaccurate. (3) In the third method, described by Vierordt in 1878, a drop of blood is drawn into a capillary glass tube. A piece of horse hair, which has been properly cleaned, is inserted into the column of blood in the tube, and is moved up and down, at intervals. When the blood adheres to the hair, the moment of coagulation has come. The writers have had no success with this method and do not recommend its use.

In 1893 A. E. Wright constructed an apparatus, consisting of a number of similar, carefully calibrated, capillary tubes. A drop of blood drawn up into one of these tubes will adhere to the lumen when coagulation takes place. The exact moment when this adhesion occurs is determined by moving the blood column from time to time. This is done by blowing gently into the tube. When no response to this air pressure can be obtained the column of blood is coagulated. Several observations are made in this manner upon blood taken at regular intervals. No reliable results were obtained, by attempting to

judge of the degree of coagulation from the consistency of the column of blood when forcibly expressed from the end of the tube. It was at first thought necessary to protect the blood from changes in temperature by suspending the tubes against a water bath. This measure has been found to be superfluous, and now no particular effort is made to keep the blood at body temperature. The favorable results reported by Wright and others, in cases where this instrument was employed, led to its use by the writers. In this series of cases, an attempt has been made to find the simplest and most accurate instrument. For this purpose the Wright apparatus was compared with the (5) Brodie-Russell.

The last method to be described is a device of T. G. Brodie and A. E. Russell. Although introduced in 1897, it has not been so widely used as it merits. The original apparatus was furnished with a water bath to keep the moist chamber at body temperature, and with a stage to regulate the size of the drop, two features which made the apparatus complex and costly. The modification devised by Prof. Guntzner and Dr. J. H. Pratt simplified the construction by omitting the water bath and stage without impairing the accuracy of the instrument. This modified apparatus was used by us.

The instrument is made by fastening a metal ring about 5 mm. in height and about 2 cm. in diameter to the surface of a glass slide. A hole in one side of the ring admits a small metal tube to which is attached a rubber tube and bulb, while, on the opposite side of the ring, is a second hole which provides for the escape of the air current. The end of the metal tube is bent slightly upward so that, by moving the cover glass, the air may be directed on the edge of the drop of blood. The upper edge of the ring is anointed with vaseline, and a drop of water placed in the chamber formed by the ring and the glass. A drop of blood is caught on a heavy cover glass and the latter placed upon the ring so that the blood drop projects into the moist chamber. The vaseline prevents the entrance of air around the edge of the ring and holds the cover glass in place. The drop is now watched with a low power microscope, while a current of air is forced through the metal tube. In this manner the corpuscles are set in motion. At first the motion may be irregular, but soon a ring of serum separates at the edge and the whole drop rotates. As the end of the coagulation-time approaches translucent masses appear throughout the drop of blood. These masses increase rapidly in size, and about them coagulation seems to take place. The moment when the edge of the drop of blood fails to rotate in response to the air current marks the end of the coagulation-time. This phenomenon may take place slowly or suddenly. As a control in all cases the cover glass was removed and the blood drop pricked with the point of a needle. Demonstration of fibrin shreds was regarded as final evidence that coagulation had occurred.

The technical difficulties of the Brodie-Russell are fewer than those to be encountered when using the Wright instrument. If the drop whirls at all in the moist chamber, a practically accurate coagulation-time can be obtained. Occasionally the drop cannot be made to rotate by the air current. This is usually due to uncleanly technic, but is sometimes caused by the exposure of the drop to a cold draught.

The Wright tubes are cumbersome, easily broken, and difficult to clean. It is not possible to tell at once whether or not the preparation will be a successful one, as can be done with the Brodie-Russell. In a certain number of cases the blood will not coagulate at all. The failure of the blood column to adhere to the lumen of the Wright tube cannot always be explained. Although sometimes if the blood is moved, just as coagulation takes place, the serum collects around the outside of the clot, and an adhesion between the clot and the tube will never take place. This failure to adhere is the greatest imperfection in the method, because there is no way of determining the coagulation-time without moving the blood. From this and other causes the Wright instrument failed to give results in 15% of the observations, while the Brodie-Russell failed in less than 5%.

It is probable, as stated by physiologists, that the contact of the blood with the tissues outside the vessels causes, in some way, the elaboration of a fibrin ferment. If the needle prick is a deep one, the rapid flow of the blood will wash away the ferment and prevent immediate coagulation. The reverse is true of a superficial prick. It is obvious from this that the needle prick should be deep enough to cause a free flow of blood, and that only the first few drops of blood should be used.

In this series of 59 cases, we have used the Wright tubes and the Brodie-Russell moist chamber side by side. The experiments were done in open wards and in small rooms, at the Massachusetts General Hospital, where the temperature varied between 51.8 and 85 degrees Fahrenheit. The coagulation-time was not found to be influenced by the temperature within these limits. Six observations were made with each instrument on 42 of the cases. In the remaining cases, the scheme of 12 observations on each patient could not be carried out.

The surface of the skin was cleansed with soap, water and alcohol, and the glass instruments with water, ether and alcohol. The blood was drawn from the surface of the body in three places, namely: from the lobe of each ear and from the ball of a thumb, a large triangular needle being used for the puncture, to insure the free flow of blood.

There have been no marked differences between the coagulation-times of the blood-drops taken from different points on the surface of the body, provided the flow has been equally free, although the contrary was observed by Pratt. The writers are convinced, from numerous tests, that if several drops of blood are taken simultaneously from different points on the surface

of their body, their coagulation-times will coincide, if the technic is perfect. Our results have not always shown the coagulation-times to be exactly the same when done with two instruments at the same time. The variations beyond a reasonable limit of error have been few, and might be explained by faults in technic. The average coagulation-time with the Brodie-Russell instrument in 300 observations was three minutes and twelve seconds; the average with the Wright was four minutes and eighteen seconds. This result is somewhat lower than that usually given.

Variations were found in health between one and seven minutes with both instruments. We attribute the extremes to technical errors. The limits are presumably three to six minutes. The proof of a delayed coagulation must be based on several observations, in order to minimize the influence of technical errors.

In this series are included 15 jaundice cases, the lesions of which embraced nearly every known cause of jaundice, *i. e.*, gallstones, catarrhal jaundice, cholecystitis, cirrhosis of the liver, cancer of the liver, cancer of the head of the pancreas, chronic pancreatitis, etc. It is of interest to note that in none of these cases did the coagulation-time vary from the normal.

The conclusions to be drawn from these observations are as follows:

The Brodie-Russell is more reliable than the Wright instrument.

The average coagulation-time is between three and six minutes.

The proof of a delayed coagulation must be based upon several observations.

The coagulation-time is not affected by the ordinary changes in room temperature.

Blood obtained simultaneously from different points on the surface of the body shows no marked variation in the coagulation-time.

A delayed coagulation is not constantly associated with jaundice due either to benign or to malignant obstruction. [The writers are greatly indebted to the visiting Staff of the Massachusetts General Hospital for their courtesy in providing material for these observations.]

REFERENCES.

Vierordt, C. H.: Archiv f. Heilkunde, 1878, xix, p. 193.
Wright, A. E.: Brit. Med. Journ., July 29, 1893; Feb. 3, 1894.
Brodie, T. G., and Russell, A. E.: Journ. of Physiology, 1897, xxi, p. 403.
Pratt, J. H.: Journ. of Med. Research, Aug., 1903.

Clinical Department.

ADENO-CARCINOMA OF INTESTINES INVOLVING THE BLADDER.

BY SARAH ELLEN PALMER, M.D., BOSTON,

Surgeon to New England Hospital and to the Charity Club Hospital.

E. C. Single. Fifty-seven. Overworked and nervous. Poorly nourished, appetite good, bowels regular. Has been losing flesh pretty steadily. Patient was well, so she says, until one year ago, when she had two attacks of grip, since which time she complains of frequent micturition accompanied by burning and smarting, until six months ago when she had an acute illness of which the nature was not very well determined. Chills, rise of temperature, and abdominal tenderness. During the time of confinement to bed the bladder annoyances were diminished and urination less frequent. Five months ago the present condition of frequent urination during the day and the need to rise four or five times during the night has existed. Occasionally blood is seen in the urine and shreds of some foreign substance. At times a clot of blood is expelled with pain, and of late the urine is often tinged with blood. Menstrual history uneventful and menopause at fifty. Three years after this, on occasion of a slight bloody discharge from the vagina, she was sent by her physician, Dr. Reid, to Dr. Call, who relieved this symptom and who found at that time no other lesion. Urine examined with negative results. On the 13th of November, 1903, Dr. Call referred her to me, with the history as given above.

Patient thin and pale. Abdomen flat and somewhat resonant to percussion. Vulva in process of senile atrophy and vagina partly involuted. Uterus was found to be, apparently, of normal size and sharply anteflexed, a little drawn to the right. Bladder examined cystoscopically under cocaine. Urethra somewhat congested in contrast to the bladder wall which, thoroughly well ballooned, was healthy in appearance, except a grayish mass a little to the right of and anterior to the fundus, apparently about three cm. by two cm. in width, and from the mass finger-like, club-shaped filaments extended into the bladder, giving the appearance of a coronoid polyp described by Clado. A small piece scraped off and sent to Dr. W. F. Whitney for examination.

Microscopic examination showed the piece sent to be composed of vascularized soft, cellular, connective tissue, surface of which was papillary and covered with a single layer of long columnar epithelium.

Diagnosis: *Papilloma.* — Several subsequent examinations were made in the office, and on two occasions the bladder seemed perfectly healthy; the gray mass could not be brought into view through the contracted bladder wall. Examined under ether at the Charity Club Hospital Dec. 3. Cystoscopic appearance as described above. Uterus apparently in normal position, and what had been supposed to be the body gave the sensation of a fibroid. The small finger introduced into the bladder after dilating the urethra. Bladder wall perfectly smooth for two thirds of the distance, then the finger entered a crypt through the contracting bladder wall, giving the sensation of the ring of Blandl in hour-glass contraction of the uterus with the placenta above. And so, in this case, the finger could sweep about a perfectly smooth bladder and then enter a crypt or cul-de-sac and come in contact with a soft spongy mass. Large mass scraped off and sent to Dr. Whitney, and the following statement returned: "The specimen from the bladder of Miss E. C. consisted of some tissue in which there was considerable thick mucus. Microscopic examination showed a fibrous tissue structure in places and distinctly myxomatous degeneration. As far as this specimen goes, the diagnosis is a myxoma."

Examination of the urine by Prof. E. S. Wood, who reported: "I am unable to find in the sediment of any of these specimens any evidence of malignant growth of the bladder. I am unable to find any cells which are at all suggestive of morbid growth. I do find, however, in the sediment of all these urines, even in the specimen passed after the bladder was washed out, particles of food, such as vegetable cells and partly digested muscular fiber. It does not seem to me rea-

sonable that these could have got into the urine after it was passed, and if they were in the urine while in the bladder, they show that there must be some connection between the intestine and the bladder. The urine also has a slight fecal odor. There is a good deal of suppuration which would be expected, of course, if there were a sinus between the intestine and the bladder. All that I can say about these specimens is, that they point more strongly to this diagnosis than to the existence of a morbid growth in the bladder."

After Dr. Wood's report we decided to open intraperitoneally, although my first idea had been to do a suprapubic cystotomy external to the peritoneum. While the patient was being prepared for operation, stimulated by Dr. Wood's report, I thought I could detect distinct gurgling in the mass anterior to the uterus.

Abdomen opened after the usual antiseptic precautions. On lifting the omentum the small intestine presented the usual grayish appearance with the exception of an intensely congested loop high in the abdomen. Uterus atrophied in good position and the ovaries sclerotic. Attached to and communicating with the bladder was a loop of small intestine. The lumen of the intestine was encroached upon by a new growth, soft to touch and deep crimson in color, forming half the wall of intestine and extending into the bladder. When the intestine was detached from the bladder, the cavity of the bladder opened directly into the abdominal cavity. The cecum formed a hard contracted mass attached to the right of the bladder, easily detached from the peritoneum covering the bladder and separated from the soft infiltrating mass, described above, by clean bladder wall. Appendix identified, small and anemic, and in usual relation to the bowel. Between the diseased cecum and the soft mass in the small intestine were loops of apparently healthy bowel. The cecum was with some difficulty detached from the broad ligament which was involved out to the pelvic wall in a small, hard, cartilaginous tissue. Special mention is made of this because in the final pathological report it is seen that the pathologist believes that the carcinoma originated in the cecum. The small intestine was detached from the bladder and resected. About 5 cm. of intestine were cut out and with it all the wall involved in the growth; two healthy ends brought together and united by the double Lembert suture of silk by the aid of Harrington's ring. The fundus of the bladder was also resected, removing the diseased mucous membrane from the bladder as far as possible, and the top of the bladder closed with a double row of Lembert suture, using chromicized catgut. Permanent catheter left in the urethra. The cecum was detached from the bladder and separated from the bowel by shoemaker stitch of catgut and then cut off. It was impossible to completely remove the diseased area, so extensive was it found to be in the peritoneal cavity.

The patient, although fifty-seven, was really a feeble old woman and in poor condition to stand so extensive an operation. Salt solution was given in large quantities into the breasts; gauze drainage was left in abdominal wound, and the rest of the wound sutured with through-and-through silkworm gut.

The patient rallied well from the operation. For twenty-four hours the amount of urine was small. On two occasions a leak of urine through the abdominal wound occasioned fear of permanent fistula, which, however, proved to be groundless, and the patient left the hospital the 4th of March, able to hold urine in the bladder for a period of three or four hours and to void it without difficulty. Bowels moved without trouble on the third day, and since that time with very little difficulty. Convalescence was slow in this underfed and delicate woman. The abdominal wound, after the stitches were removed, had made no effort to unite above the fascia. It simply fell apart in two dry surfaces, but, as she improved, this granulated up and was completely healed when patient left the hospital. The patient at present writing is at her own home and in fairly good condition.

PATHOLOGICAL REPORT FROM DR. WHITNEY.

The specimen received from you, Dec. 19, 1903 (T. 311–10 C), consisted of two pieces of intestine and some irregular fragments from the bladder wall. Examination showed the piece from the head of the colon to be a tubular mass about the size and half the length of the thumb. One end showed the normal structure of the intestine while the other was irregular and ragged as if from a new growth. Upon opening this mass there was a small tubular thickening on one side about the size of a Fallopian tube, and about 3 cm. in length. This opened freely into the cavity of the intestine. The other end was lost in a ragged new growth.

Microscopic examination showed the structure of the new growth to be that of an adeno-carcinoma with extensive mucous degeneration. The piece of small intestine showed a portion of a similar growth adherent to the outside, and into this was a fistulous opening from the interior of the intestine.

Microscopic examination of the piece of tissue from the bladder wall showed an infiltration of a similar new growth.

Diagnosis: Adeno-carcinoma of the head of the cecum involving the bladder and intestine.

In conclusion, I have to thank Dr. Charles H. Hare, who kindly assisted at the operation as well as at the etherized examinations, also Drs. Wood and Whitney, who gave their valued assistance and encouragement, and the house officers of the Charity Club Hospital.

Reports of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

TWENTY-NINTH ANNUAL MEETING, HELD IN BOSTON, MASS., MAY 24, 25 AND 26, 1904.

(Continued from No. 1, p. 20.)

FIRST DAY. — (Continued.)

SURGERY OF THE FEMALE URETHRA.

DR. ELY VAN DE WARKER of Syracuse, N. Y., read a paper on this subject. The urethra, he said, appeared like an insignificant part; its vital relations were negligible, its anatomy was relative and acquired its importance from its related organs, but it might be said to epitomize a large share of the suffering that woman's pelvic organs inflicted upon her. The amount of disturbance caused by a simple irritation of the urethra to the bladder, and indirectly to the kidneys, afforded striking proof of the validity of reflected nervous disturbance.

The term sacculation was regarded as better than the old one, urethrocele. Its major cause was mechanical, as inflammation alone was not adequate to its production. The urethra might be said to belong to the perineal rather than the pelvic zone of organs. The walls of the canal depended in a measure upon the support of the perineal body. It was often associated with long-standing rupture of this part. Restoration of the perineum was, therefore, essential to treatment of the sacculation. When large, an elliptical flap of the walls of the urethra was removed and the edges brought together by fine silk sutures. Prolapse of the mucous lining of the urethra the author had generally associated with long-standing urinary troubles of various kinds. It was, therefore, probably

due to a gradually progressive condition, and was a typical ptosis, and complied with the general law of genital prolapse. After removing the prolapsed portion, there was a marked tendency to recurrence unless the conditions which gave rise to it were treated and cured. Bladder incontinence and dribbling were often lifelong conditions. That this was due to a defective action of the sphincter vesicæ was more than doubtful. Dribbling was one of the symptoms of hysteria, of which a striking case was given in illustration.

Narrowing, by operation, the bladder and end of the urethra, linear cauterization at this point had afforded relief. Any treatment was liable to fail, and relapses were frequent. The powerful influence of hysterical disturbance over the urinary tract was constantly observed. Dribbling was the related phase of retention. The treatment of this form was more satisfactory. The urethral stricture, when of small caliber, was frequently found with dysuria and dribbling. The author referred to but two cases of urethral mucous polypus, and concluded that they must be rare. These growths ought never to be twisted off, as the tissues were too friable. Removal of the growth through the mucous membrane, so that no stump was left, was the proper procedure.

Stricture of the urethra, in the author's experience, is common in women. Any condition that tended to produce linear or annular thickening thus led to stricture. Specific urethritis might produce stricture, but it was not the frequent cause alleged by some writers. Stricture of large caliber might be located and measured by the Otis bulbs, but never by the sound, as was recommended by old systematic writers. Annular stricture of the meatus was the form most commonly met with. This ought to be incised and made to heal in an open condition by the frequent passage of the sound. Dilatation alone was too painful and required too much time. As to eversion of the mucous membrane at the meatus its prototype was the fusiform stricture of Otis, and its surest cure was by dilatation. Caruncle of the urethra was a common occurrence. Removal, involving the whole thickness of the mucous membrane, being careful not to leave a stump, was an effectual cure.

PYELITIS COMPLICATING PREGNANCY.

Dr. Edwin B. Cragin of New York said the occurrence during pregnancy of a marked rise of temperature, with pain and tenderness on the right side of the abdomen, was always a source of anxiety to the obstetrician. Although several able articles describing the condition had appeared, it was not generally recognized that pyelitis was not an infrequent cause of the above symptoms. It might be confused with appendicitis, typhoid fever, or salpingitis. It occurred almost, if not quite, invariably on the right side. It was due to pressure on the ureter by the pregnant uterus plus an infection. This infection was usually descending, and was usually due to the colon bacillus. The urine was acid, contained at first albumin and perhaps a few casts, soon followed by pus and bacteria. The prognosis was usually good. Induction of labor was seldom indicated. The medical treatment by urotropin, or allied drugs, with ice bag over the kidney, fluid diet, and large draughts of water was usually sufficient.

A SECOND CASE OF PUERPERAL ECLAMPSIA SUCCESSFULLY TREATED BY RENAL DECAPSULATION.

Dr. George M. Edebohls of New York said the first case, reported to the society a year ago, illustrated the immediate cure by renal decapsulation of puerperal convulsions, recurring with great and increasing violence after the birth of the child, a period at which the hitherto final resource of forced delivery was, of course, no longer available. In presenting the case the opinion was advanced that resort to renal decapsulation in the undelivered woman suffering from puerperal eclampsia might obviate the necessity of forced delivery. The case now reported illustrated the correctness of that opinion. Renal decapsulation was performed upon a woman pregnant near term, suffering from puerperal eclampsia, and almost complete suppression of urine. The convulsions were arrested, the flow of urine was re-established, and a threatened death from uremia was averted. Two days after all this had been accomplished labor began spontaneously, and living twins were born. One child died soon after birth. The second child and the mother were in perfect health four and one-half months after the termination of pregnancy. Renal decapsulation thus became the rival of forced delivery in cases of puerperal convulsions of renal origin in the undelivered woman. In puerperal convulsions, occurring or recurring after delivery, it constituted the final resort when all other measures had failed.[1]

Second Day.

PRIMARY REPAIR OF LACERATIONS OF THE CERVIX UTERI.

There was a symposium on this subject. Dr. Edward P. Davis of Philadelphia read the first paper. Experience in fifty-three cases had led to the following conclusions: When the patient was not infected, and when the tissues had not been subjected to sufficient violence to threaten necrosis, and laceration of the cervix, one-half inch or more in extent, was present, primary closure had been followed in his experience with good results. These cases usually occurred in primiparæ, where resistance in the soft parts occasioned sufficient delay and fatigue to require delivery by forceps. They were also seen in cases of premature labor, whether spontaneous or induced, where the cervix was not physiologically softened for perfect dilatation. They were also found in patients having spontaneous labor with very strong expulsive efforts, and with large children. Naturally those cases in which the mechanism of labor was abnormal through posterior rotation of the occiput, face presentation or breech presentation, predisposed to laceration of the cervix. While primary closure of laceration of the cervix was indicated in the conditions just described, certain conditions were necessary for its successful performance. These conditions were outlined. Dr. Davis then described the technique of the operation and the after-treatment.

The number of cases under observation was 53. In these, good union occurred in 45, fair union in 6, no union in 7, while infection developed in none. In 84.9% the operation was successful; in 11.3% it was moderately successful, and in 3.8% the operation failed. The percentage of infection was *nil*.

He pointed out the objections which were commonly urged against this operation, after which he said that in appropriate cases in his experience, immediate closure of the cervix had given no inconvenience to the mother, and had been followed by excellent results. The operation was not advised for those who do not practice obstetrics with good surgical technic, and who were not competent to operate on the genital tract.

[1] For the full paper see Journal, Vol. CL., p. 586, 1904.

THE PRACTICE OF CERVIX SUTURE ON THE FIFTH DAY AFTER DELIVERY.

DR. ROBERT L. DICKINSON of Brooklyn said that no complicated or considerable perineal injury should be repaired at the close of labor, but three to five days later. This had an important bearing on lacerations of the cervix, as this was the ideal time to restore such injuries. The huge edema, the bruising, and the uncouth distortion of the vaginal portion just after delivery rendered identification of the parts that should be brought together impossible, and attempt to accurately coapt, guesswork. Therefore, whenever possible, the cervix should be sewed on the fifth day. The frozen sections of the puerperal weeks showed that then, and not till then, shrinkage had occurred. Bleeding no longer obscured the difference between flayed surface and torn structure. Then only were the surroundings of the operation, in the way of illumination, table, time, and a rested personnel possible. This applied particularly to private practice.

The conditions under which the cervix should be repaired at the close of labor were : (1) Bleeding from a firmly contracted uterus, notwithstanding ergot, heat, holding, and tampon. Here there was a spurting artery. (2) When the cervix injuries were clean cuts, of known location, as after Dührssen incisions. (3) When, in the immediate repair of a moderate perineal injury, a tear of the cervix is found.

The conditions under which the cervix should be repaired several days after labor were: (1) Exhaustion of patient, or surroundings and conditions which precluded careful work. (2) Extensive injuries, except when these persistently bled or had been cut by the surgeon. (3) When accompanied by complicated or considerable injuries to the pelvic floor.

The author drew attention further to the alterations produced by granulation and contraction in these wounds when left alone, so that the scarred, swollen, everted, or cystic cervix months or years after injury gave uncertain indications for accurate restoration to the original condition.

GENERAL CONSIDERATIONS OF LACERATION OF THE CERVIX UTERI.

DR. J. M. BALDY of Philadelphia stated that as a matter of clinical fact, let the cervix uteri be torn deeply, and if the parts were preserved from infection, the greater part of the tear would heal spontaneously, and the rest of it would remain perfectly healthy, as much so as would the lobe of the ear which had been torn through by the weight and drag of our great-grandmother's earrings. The lips would remain uninfiltrated, of normal size and thickness, with no eversions and no erosion of the lining mucous membrane. In such a case there would be no untoward symptoms and no bad effects whatever.

There was a tendency amongst obstetricians to repair these lacerations primarily. The objections to such practice were manifold, and he admitted a prejudice against it. These objections were pointed out. Whatever might be ideal surgery under the exigencies of actual practice, the treatment for recent lacerations of the cervix remained, and he believed would remain, rigid local cleanliness, excepting where there was sufficient hemorrhage to demand a ligature. Where non-infection could be insured, and where the torn lips were not unnecessarily disturbed by the careless use of the nozzle of a syringe, spontaneous healing of these lacerations might be expected to a greater or less degree, and what tear remained, when nature was through with her work, would be of a healthy character, would give no future trouble, and would need no surgical interference.

The symptoms of chronic lacerations of the cervix uteri were essentially local in their production and remained so in their manifestations. He had no sympathy with the views which attributed reflex symptoms to these lesions. In uncomplicated cases, where there simply existed a laceration of the cervix uteri, with everted and eroded lips, producing a constant leucorrhea and a feeling of weight and uneasiness in the pelvis and about the rectum, these so-called reflex symptoms did not exist.

There was one belief prevalent which would warrant, nay, demand, a repair of every lacerated cervix — the belief that lacerations of the cervix produced carcinoma. In this belief he took no part, and no one had to his knowledge as yet produced a single scientific fact which would uphold such a theory.

In twenty years' work he had not seen a single case of cancer develop in a laceration of the cervix which he had refused to repair.

INTRAPELVIC HEMATOMA.

DR. J. WHITRIDGE WILLIAMS of Baltimore reported a case of intrapelvic hematoma following labor, and made some remarks on the treatment of incomplete rupture of the uterus.

PRESIDENT'S ADDRESS.

DR. EDWARD REYNOLDS of Boston in his presidential address said, among other things, that the society owed its pre-eminence along its chosen line less to the words than to the prolonged and daily labor of the eminent men who had composed it in the past, and must owe its future to the lifework of the equally able men who were to fill its membership in the coming years.[2]

(To be continued.)

Recent Literature.

Studies in Heteromorphosis. By H. CHARLTON BASTIAN, with 815 illustrations. 8vo. pp. Williams & Norgate. 1903.

It is a sad task to call attention to this work, which, now that it is completed, has gained nothing in value beyond what belonged to the first part, of which we printed a notice in this JOURNAL upon its first publication. The author is unfortunate in making the ambitious attempt to overthrow the fundamental conceptions of biology, as to species, heredity, the genetic relations of forms, etc., by maintaining that by "heteromorphosis" one form of low life may give rise to another entirely different, as bacilli and eggs of rotifers to protozoans! He lacks the very most rudimentary conception of scientific proof, and the elementary ideas as to experimentation which we might expect of a schoolboy. It is only necessary to say that his typical experiment is to put stagnant water with vegetable matter in an open flower pot. Finding, at first, one species plentiful and days or weeks later another species plentiful, he has "proved" that the first has changed into the second. It is hardly necessary to add that the book is in no sense a scientific publication, and should be forgotten as speedily as possible.

C. S. M.

[2] For the full address see JOURNAL, Vol. cli, p. 1.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, JULY 14, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

Subscription Terms: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 and 29 Bromfield Street, Boston, Mass.

BOSTON'S CHRONIC SICK.

There is every evidence to show that the best sentiment of the public is coming to regard the person ill with chronic disease in the same general category as the person ill with an acute disease. That such a recognition should have been so slow in coming is certainly a matter of regret, but that the chronic sick in this city, as in others, are likely hereafter to have adequate hospital care with the appurtenances which go with a modern hospital is hardly to be questioned. In view of the vicissitudes which the Long Island Almshouse and Hospital of Boston has experienced during the last few years, in the attempt to establish a hospital in the best sense of the word, it is gratifying to record the fact that at the recent exercises of the graduation of nurses, the Hon. John B. Martin, in charge of the institution, affirmed that the hospital idea as there developed had come to stay. Mr. Martin no doubt expressed the wide public sentiment which is shared not only by physicians who are at all acquainted with the conditions, but also by the people at large who have a vital interest in the proper care of our pauper sick.

In this connection, the seventh annual report of the Pauper Institutions Trustees for the year ending Jan. 31, 1904, is of interest. During the term of service of this board of trustees, the development of the medical side of the hospital had been going on year by year until at the time of their retirement from office it had attained a high rank as a well-equipped and well-manned institution for the care of the chronic sick. The feeling has grown that this institution should be regarded rather from the point of view of a hospital than of a mere refuge for the infirm, and that its future development should take place along hospital lines. Reference to the report demonstrates in striking fashion the correctness of this point of view.

During the year there were 847 admissions to the institution. Of these, 568 or 77.2%, went direct to the hospital. If such figures are fairly constant, and we have no doubt that they are, the attempt to regard the institution as an infirmary, merely, evidently cannot be maintained. The further statistics that 1,200 cases were treated in the hospital during the year, of whom 253 were hospital patients on Jan. 31, 1903, and that among the entire number treated there were 232 deaths during the year, are again evidences of the condition of chronic invalidism which prevails. The hospital for tuberculosis, established recently, has proved far inadequate to the demands made upon it. It will accommodate 51 patients, but on Jan. 31, 1904, there were 82 in the institution, naturally necessitating their classification with other patients, a plan which is altogether to be regretted.

The report of the visiting staff calls attention to the general medical work which has been accomplished during the last year at the institution, and insists upon the necessity of regarding practically the entire institution community as coming in the category of the sick. The need of a pathological building, the desirability of the installation of an x-ray apparatus, and the usefulness of a receiving ward for the hospital, are touched upon in this statement. The retiring board of trustees is deserving of the gratitude both of the medical profession and the laity, in having clearly seen the necessities of the situation and carried out those plans which looked toward a completer hospital development. That the work so inaugurated will be allowed to languish is not to be seriously entertained. The city needs a hospital of the first rank at Long Island if it is to maintain its traditions and keep pace with the admirable work done in other cities.

The *London Times* of June 6 refers to certain conditions at the Infant Asylum at Wanstead, a charitable institution supported by the public, and providing for upwards of five hundred children of both sexes. Not long since, for certain reasons not stated, the staff of trained nurses was dismissed from the hospital and adequate provision for the proper isolation of infectious cases was not carried out. In consequence of these circumstances, the consulting medical staff very properly felt called upon to resign on the ground that those arrangements it regarded as necessary for the health and well-being of the patients were

not inaugurated, and that therefore its responsibility for the occurrence of disease could no longer be borne. We state these facts, as quoted, simply to illustrate the very great desirability of perfect co-operation between the public, as represented by the management of such institutions, and the physicians who are and should be held responsible for their medical interests.

Wide as the differences of opinion may legitimately be as to the ways and means of the best management of our public institutions, it is apparent in this, as in all other complicated undertakings, that sympathy between the various departments should be maintained at the very highest possible level. This is perfectly possible, as examples everywhere show, and certainly the efficiency of an institution must depend in greatest measure upon the completeness of such co-operation.

In the city of Glasgow on May 15 of this year, 1,694 persons were classified in hospitals as dependent or pauper sick. The problem in Glasgow is, no doubt, absolutely similar to that in other cities, and there is every evidence to show that it is being thoroughly studied from various points of view, and that its solution must in great part be worked out on the basis of the hospital idea in the broadest sense of that term.

THE VALUE OF LEUCOCYTOSIS IN THE PELVIC AFFECTIONS OF WOMEN.

LEUCOCYTOSIS in the pelvic affections occurring in the female may be considered under three different aspects: First, as a diagnostic measure; secondly, as an indication or a contra-indication for surgical interference; and thirdly, as an indication in the prognosis. From his personal experience in the matter, Carmicheal in a recent and very able contribution to the subject (*Scottish Medical and Surgical Journal*, February, 1904) concludes that leucocytosis cannot be looked upon as an infallible sign of the presence of pus, and that it should only be taken into account along with other symptoms presented by the patient. In six cases of ovarian neoplasms, the leucocytosis varied and was not marked, appearing to be rather more directly in relation to the amount of inflammation present than to the malignant nature of the affection. In acute inflammatory lesions there was always a marked increase of the leucocytes with an increased temperature, but a leucocytosis is without value when no other symptoms are present.

A leucocytosis is of great importance in chronic processes. In lesions of the tubes the presence of a leucocytosis will give indications as to the presence of pus, the virulence of the bacteria, as well as the best operative procedure to adopt. If there is a high degree of leucocytosis with a marked tumefaction of the tube, palliative treatment, simple drainage or a vaginal operation is to be selected. When the leucocytosis is not marked and the tube not greatly enlarged the abdominal route is the one of choice.

In carcinoma of the cervix with extensive ulceration, a marked leucocytosis is often found, but under these circumstances the operative indications are governed by the local conditions.

After hemorrhage, for example, in cases of fibroids, a high leucocyte count may be found which would be rather a contra-indication for operation until the time when palliative treatment has reduced the number of leucocytes.

As to the prognosis, it is well known that a leucocytosis may be absent in cases of very acute appendicitis, and Carmicheal found it wanting in a case of puerperal septicemia. In infections, the absence of leucocytosis is serious, and if in a case of puerperal septicemia the general condition becomes worse, and there are indications that the organism no longer reacts against the infection, there is still time to operate in order to rid the patient of her focus of infection. When making a blood count one should never forget the normal causes of a leucocytosis, such as digestion, anesthesia, hemorrhage, purgation, etc., in order to avoid all possibility of error.

INTERESTING IF TRUE.

THE proverbial inaccuracy of birth weights leads to a certain legitimate skepticism regarding the truth of the statement which we quote in the following paragraph. Just why there should be so wide margin of error in estimating the weight of the new-born child is not always easy to appreciate, but that it should be greater than it actually is, is no doubt in a measure due to the natural pride of the parents. To be the mother of the largest infant on record is no doubt a worthy ambition, and possibly Mrs. Tasta, to whom we refer, was imbued with this idea. However this may be, we give the fact for what it is worth.

Mrs. Madelina Tasta, of the Italian colony in New York, is reported to have celebrated the Fourth of July by giving birth to one of the largest infants on record, its alleged weight being nineteen pounds. If this report is even measur-

ably trustworthy, it is especially remarkable for a first child, as the young mother is stated to be only eighteen years old.

The largest child delivered alive mentioned by Lusk is one reported by Waller, the weight of which was fifteen pounds fifteen ounces. Ramsbotham speaks of a fetus weighing sixteen and a half pounds, and Cazeau of one which he delivered by turning which weighed eighteen pounds, while in the *British Medical Journal* of Feb. 1, 1879, the birth of one weighing twenty-one pounds is reported. Dr. Robert Harris, the American editor of "Playfair's Midwifery," states that probably the largest fetus on record was that of Mrs. Captain Bates, the Nova Scotia giantess, whose husband was, like her, over seven and a half feet tall. This child, born in Ohio, was their second, and was lost in its birth, as no forceps could be procured of sufficient size to grasp the head. It weighed twenty-three and three-quarters pounds, and was thirty inches in length. Their first infant weighed nineteen pounds at birth.

MEDICAL NOTES.

Fourth of July Death List. — The *Chicago Tribune* announced on July 6 that the total number of deaths resulting from accidents on the Fourth of July was 52, and the number of persons more or less injured 3,049. Up to the time this report was made the death list this year was one less than that of 1903, and the number of injured 616 less. The result of tetanus cases, which are sure to occur in greater or less number, cannot yet be determined.

Tuberculosis at the Johns Hopkins Hospital. — It is announced that the Johns Hopkins University is about to undertake systematic work on the subject of tuberculosis. Aided by a gift of $20,000 from Mr. Henry Phipps of Pittsburg, a dispensary building is proposed, so arranged as to combine the treatment of patients with adequate rooms for investigation.

Dean of Medical School of University of Southern California. — Dr. Walter Lindley, the editor of the *Southern California Practitioner*, has recently been elected Dean of the Medical College of the University of Southern California. This Los Angeles school is now entering its twentieth session.

Physicians for Panama. — It is stated that about three hundred physicians are to be sent to the Isthmus of Panama to care for the health of the fifty thousand men who are to be engaged on the forthcoming work on the canal. For this work young and active men in robust health will be needed, and no doubt they may without difficulty be obtained.

Visit of French Physicians to London. — A number of representative French physicians are intending to pay a visit to London in October for the purpose of investigating methods of work and research in England. Arrangements for their proper reception are already being undertaken by the physicians of London. Such tours of friendly inspection among the medical men of various countries should most certainly be encouraged.

The New Vienna General Hospital. — According to the *Medical Record:* "On June 21, 1904, the Emperor of Austria laid the cornerstone of the new Allgemeines Krankenhaus, to take the place of the present famous building. The new hospital will in reality be a village of fifty buildings, and will contain every device and appointment known to medical science. It is the aim of the directors of this gigantic hospital to make it the finest, best and most completely equipped hospital in the world. It will be built upon one of the hills of Vienna, overlooking the present site, and the grounds will be much more beautiful than those of the present hospital.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, July 13, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 40, scarlatina 15, typhoid fever 17, measles 29, smallpox 0.

A Bit of Newspaper Medicine. — The proverbial ignorance of the laity on medical matters finds some excuse when such statements as the following are possible, quoted from a local daily newspaper:

J. J., who became paralyzed and insane from the effects of a blood clot on his brain, attempted to commit suicide by shooting. The ball fired by him penetrated the affected part, dissipated the blood clot, restored his sanity, and it is believed he will entirely recover from his paralysis.

Commendable Emergency Work. — At the recent destructive fire caused by lightning in Charlestown, Lieut. W. C. Rucker, Past Assistant Surgeon, U. S. N., in charge of the United States Marine Hospital in Chelsea, and his assistants were upon the scene with their equipment a very

few moments after the fire broke out. It is said that they arrived and were at work caring for the injured before the arrival of the fire apparatus.

NEW YORK.

PUBLIC BATHS. — The first of a series of permanent public baths, to be erected and maintained at the city's expense, was opened on July 1 in William H. Seward Park, on the lower east side. The building, which is of brick exterior, with a liberal use of marble for interior appointments, cost with its equipment about $110,000. It is Ionic in its style of architecture, and consists of three stories. The first floor is devoted to the baths, and, allowing twenty minutes for each bather, it is estimated that at least 2,500 persons can be accommodated daily. The second floor, a special feature of which is a large loggia, supplied with comfortable chairs, is reserved for the use of women, especially those with young children, and two matrons will attend to their wants. This bath is absolutely free, even as regards soap and towels, the expense of which is to be paid for out of the maintenance fund. Similar buildings are to be erected in the DeWitt Clinton, Thomas Jefferson, St. Gabriel, and other small parks.

JUNE MORTALITY. — The mortality in the city during the month of June represented an annual death rate of 20.98, as against 21.70 in May and 16.95 in the month of June, 1903. One factor in the increased mortality, as compared with that of last year, is the epidemic of cerebrospinal meningitis which has prevailed. As compared with May, the effect of warm weather is strikingly shown in the decrease in the number of deaths from pneumonia and organic heart diseases; while, on the other hand, there is naturally a considerable increase in the deaths from diarrheal diseases. Among the diseases which showed a reduced mortality were the following: The weekly average of deaths from diphtheria and croup decreased from 47.25 in May to 42.5 in June; the weekly average of deaths from scarlet fever, from 25 to 15.25; from measles, from 38.75 to 21.75; from influenza, from 7.5 to 1.5; from typhoid fever, from 10 to 7.75; from pneumonia, from 173.25 to 69; from broncho-pneumonia, from 101.25 to 59.25; from acute bronchitis, from 39 to 23.75; from pulmonary tuberculosis, from 178.5 to 152; from Bright's disease and nephritis, from 126 to 104; and from organic heart diseases, from 102 to 70.5. There was a slight increase in the mortality from cancer, while the weekly average of deaths from diarrheal diseases increased from 48 to 131.5, and from diarrheals under two years of age, from 38.5 to 119. In the week comprising the last six days of June and the first day of July there were no less than 316 deaths from diarrheal diseases, as compared with 100 in the preceding week and an average of 55 in the earlier weeks of June. During the month there was one death from smallpox, the first since March.

The epidemic of cerebrospinal meningitis has continued to show a gradual decline. The deaths reported from it have been as follows:

In the week ending June 4 — 63.
In the week ending June 11 — 54.
In the week ending June 18 — 53.
In the week ending June 25 — 48.
In the week ending July 2 — 39.

WORK OF SUMMER CORPS OF PHYSICIANS. — On July 5 the summer corps of physicians of the New York Board of Health, sixty in number, commenced their annual house-to-house visitation among the tenement population, for the purpose of preventing illness among the children and relieving it when found. On the same date the regular trips of the St. John's Guild floating hospital to New Dort, Staten Island, were commenced for the season. The rules require that while in the boat each infant and child, unless special circumstances contra-indicate, shall receive a bath. For the older children salt water shower baths are employed. The "Helen C. Juilliard," the newer of the two floating hospitals belonging to the Guild, and the only one which will probably be used this summer, has been thoroughly overhauled and painted, and before commencing its trips was subjected to a rigid inspection. It is equipped with 600 new life preservers and with adequate life boats, rafts and buoys, while for fire protection there are six fire extinguishers, a heavy Worthington steam fire pump, and eight lines of fire hose attached to standpipes. The tug which tows the boat is also equipped with a powerful fire pump, and the crew is skilled in fire drill. The "Juilliard" has in all a working staff of forty-eight.

Obituary.

SAMUEL LEONARD ABBOT, M.D.

DOCTOR SAMUEL LEONARD ABBOT died July 1, at the age of eighty-six years. He graduated at Harvard college in 1838, in the class with James Russell Lowell and William Story, and from the Medical Department in 1841.

He was one of the oldest physicians of Boston,

and the last of that noteworthy group of practitioners connected with the Massachusetts General Hospital, a half century ago. He was the first physician to out-patients when the service was so small that a single physician could fill the position, and remained upon the visiting staff until disqualified by age. These duties of his public professional life he performed with uniform and conscientious devotion.

His private practice lay among the old families of the "west end." Rich and poor found in him a faithful and cheering counsellor, and there in quiet and shady Louisburg Square he continued to live and work until his death.

Dr. Abbot had that active interest in manifold directions which characterized the old-time member of our profession. In early days he was a zealous student of ornithology, and was long officially connected with the Boston Society of Natural History. He was a member of the American Academy of Arts and Sciences. For many years he was associate editor of the BOSTON MEDICAL AND SURGICAL JOURNAL. He was the oldest living member of the Thursday Evening Club, composed of representatives of all professions in the widest modern acceptation of the term, of merchants, capitalists, etc. He was from childhood connected with the First Church in Boston, and long one of its administrators.

He has passed away after a long, useful and gentle life, this conscientious, amiable physician, respected and beloved by all who knew him.

Miscellany.

DEATHS IN BATTLE DURING LAST CENTURY.

THE *British Medical Journal* makes the following statement of Professor Richet's estimate of the number of deaths in battle during the last century:

The genial and learned Professor of Physiology in the Faculty of Medicine in Paris, Prof. C. Richet, once wrote a novel and made a forecast of the probable condition of the world a hundred years hence. An ardent lover of peace on earth and an eloquent apostle and advocate of the doctrine of goodwill among men, Professor Richet has been "looking back" over the past century and reckoning the death toll due to wars during the enlightened nineteenth century. He estimates the grand total to be about 14,000,000, made up as follows: Napoleonic wars, 8,000,000; Crimean wars, 300,000; Italian war, 300,000; American Civil war, 500,000; Franco-German war, 800,000; Russo-Turkish war, 400,000; civil wars in South America, 500,000; various colonial expeditions in India, Mexico, Tonquin, South Africa, etc., 3,000,000. If to these who died in the "stricken field" we add the number of "broken" disabled soldiers, the widows and the children who suffered, we have indeed a huge budget of slaughter, a record of Christian activity that almost makes one despair. The new century seems to have started as if it intended to maintain the record.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 2, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Cerebro-Spinal Meningitis.	Typhoid Fever.
New York . .	3,908,644	1,591	718	38.53	9.74	3.14	2.45	.75
Chicago . . .	2,021,086	398	104	23.35	8.54	1.75	—	1.00
Philadelphia	1,407,968	533	180	32.83	7.69	2.06	—	2.06
St. Louis . .	633,696	—	—	—	—	—	—	—
Baltimore . .	549,329	221	92	36.65	6.79	.90	.90	.90
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	140	—	38.56	7.85	1.43	—	7.85
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee . .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	74	22	25.66	5.40	—	—	2.70
Boston . . .	617,950	180	55	20.55	8.89	—	—	1.66
Worcester . .	186,925	32	5	9.37	3.12	—	—	3.12
Fall River . .	119,349	27	17	51.84	7.40	—	3.70	—
Lowell . . .	104,402	35	15	11.42	11.42	—	—	—
Cambridge . .	100,998	19	7	5.26	5.26	5.26	—	—
Lynn	73,875	15	—	20.00	—	6.67	—	6.67
Lawrence . .	72,848	—	—	—	—	—	—	—
Springfield .	72,020	17	5	35.29	—	—	—	—
Somerville .	70,413	6	—	16.67	—	—	—	—
New Bedford	68,863	24	8	12.50	8.33	—	—	—
Holyoke . . .	50,538	23	11	34.78	—	—	—	—
Brockton . .	46,601	8	2	50.00	—	—	12.50	—
Newton . . .	39,310	6	1	16.67	16.67	—	—	—
Haverhill . .	39,061	17	1	11.76	5.88	—	—	—
Malden . . .	37,205	8	1	12.50	—	—	—	—
Salem	37,188	10	2	10.00	—	—	—	—
Chelsea . . .	36,498	9	2	33.33	11.11	11.11	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	—	—	—	—	—	—	—
Everett . . .	30,309	7	2	14.30	—	—	—	—
North Adams	29,201	3	2	33.33	—	33.33	—	—
Quincy . . .	26,798	5	1	40.00	—	—	—	—
Gloucester .	26,131	7	1	—	—	—	—	—
Waltham . .	25,797	6	1	16.67	—	—	—	—
Brookline . .	23,576	3	—	33.33	—	—	—	11.11
Pittsfield . .	22,870	9	3	22.22	—	—	—	—
Medford . .	21,956	2	—	—	—	—	—	—
Chicopee . .	21,892	6	4	33.33	—	—	—	—
Northampton	20,314	5	2	—	—	—	—	—
Beverly . . .	15,807	1	1	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	1	0	—	—	—	—	—
Adams . . .	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	4	3	—	—	—	—	—
Newburyport	14,478	2	0	—	—	—	—	—
Woburn . . .	14,315	—	—	—	—	—	—	—
Melrose . . .	13,819	—	—	—	—	—	—	—
Westfield . .	13,809	6	2	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,689	3	2	—	—	—	—	—
Revere . . .	13,609	3	—	33.33	—	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody . .	13,406	—	—	—	—	—	—	—
Gardner . . .	13,324	0	—	—	—	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,375	1	1	—	—	—	—	—
Weymouth .	11,350	2	0	—	—	—	—	—
Plymouth . .	11,189	—	—	—	—	—	—	—

Deaths reported, 3,469; under five years of age, 1,273; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,138; acute lung diseases 289, consumption 364, scarlet fever 20, whooping cough 14, cerebrospinal meningitis 43, smallpox 2, erysipelas 6, puerperal fever 11, measles 32, typhoid fever 48, diarrheal diseases 522, diphtheria and croup 76.

From whooping cough, New York 5, Chicago 2, Philadelphia 3, Baltimore 1, Boston 1, Worcester 1. From smallpox, New York 1, Philadelphia 1. From cerebrospinal meningitis, New York 39, Baltimore 2, Fall River 1, Brockton 1. From typhoid fever, New York 12, Chicago 4, Philadelphia 11, Baltimore 2, Pittsburg 11, Providence 2, Boston 3, Worcester 1, Lynn 1, Pittsfield 1. From erysipelas, New York 2, Philadelphia 3, Boston 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending June 18, the death-rate was 13.8. Deaths reported 4,029; acute diseases of the respiratory organs (London) 57, whooping cough 101, diphtheria 29, measles 186, smallpox 1, scarlet fever 25.

The death-rate ranged from 1.7 in Handsworth to 23.7 in Stockport; London 12.8, West Ham 10.7, Brighton 14.9, Southampton 6.5, Plymouth 14.2, Bristol 12.6, Leicester 11.6, Nottingham 15.5, Birkenhead 11.8, Liverpool 18.7, Bolton 12.5, Manchester 20.0, Salford 17.8, Bradford 14.8, Leeds 18.6, Hull 13.1, Sheffield 13.1, Cardiff 10.6, Rhondda 14.1, Wigan 14.1, Merthyr Tydfil 16.5, Walthamstow 7.5, Warrington 15.5.

METEOROLOGICAL RECORD.

For the week ending July 2, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 26	29.86	82	92	71	83	56	70	W	W	9	10	C.	F.	.01
M.. 27	30.01	74	82	65	61	46	53	N W	N	10	8	C.	C.	0
T.. 28	30.16	64	70	59	52	62	57	N E	S E	4	9	F.	O.	0
W.. 29	29.97	61	65	57	82	97	90	S E	N	8	6	R.	R.	.43
T.. 30	29.91	66	75	57	97	89	93	E	S W	6	18	R.	O.	.23
F.. 1	29.88	74	80	69	95	88	92	S W	S	5	14	R.	C.	.03
S.. 2	29.94	70	79	60	84	66	95	S W	W	10	10	F.	O.	0
☞	29.96		78	63			79							.70

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JULY 2, 1904.

J. MILLER, JR., assistant surgeon. Detached from the "Denver" and ordered to the "Kentucky."

F. A. ASSERSON, assistant surgeon. Detached from the "Kentucky" and ordered to the Navy Yard, New York, N. Y.

J. C. PRYOR, surgeon. Commissioned surgeon with rank of Lieutenant Commander, from March 3, 1903.

C. D. LANGHORNE, surgeon. Commissioned surgeon with rank of Lieutenant Commander, from June 9, 1903.

W. G. FARWELL, N. T. MCLEAN, C. T. GRAYSON, assistant surgeons. Commissioned Assistant Surgeons with rank of Lieutenant, junior grade, from June 28, 1904.

J. MILLER, JR., assistant surgeon. Orders to the "Kentucky," revoked; detached from the "Denver" and ordered to duty with the marine battalion on the Isthmus of Panama.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JULY 7, 1904.

PURVIANCE, GEORGE, assistant surgeon-general. Granted leave of absence for one month from July 1, 1904, on account of sickness. July 7, 1904.

KALLOCH, P. C., surgeon. Granted leave of absence for eight days from July 7. July 1, 1904.

MCINTOSH, W. P., surgeon. To assume temporary charge of the Portland, Me., quarantine station during the absence on leave of the medical officer in command. July 1, 1904.

CURRIE, D. H., assistant surgeon. To report to chairman of board of examiners, San Francisco, Cal., July 25, 1904, for examination to determine his fitness for promotion to the grade of passed assistant surgeon. July 1, 1904.

KORN, W. A., assistant surgeon. To report at Washington, D. C., for special temporary duty. July 5, 1904.

HOLT, J. M., assistant surgeon. To report to chairman of board of examiners, San Francisco, Cal., July 25, 1904, for examination to determine his fitness for promotion to the grade of passed assistant surgeon. July 1, 1904.

TROTTER, F. E., assistant surgeon. To report to chairman of board of examiners, San Francisco, Cal., July 25, 1904, for examination to determine his fitness for promotion to the grade of passed assistant surgeon. July 1, 1904.

MCLAUGHLIN, A. J., assistant surgeon. To proceed to Atlantic City, N. J., for the purpose of making a physical examination of certain keepers and surfmen of the Life Saving Service. July 7, 1904.

FOSTER, A. D., assistant surgeon. Granted leave of absence for seven days from July 8. July 6, 1904.

ROBERTSON, H. MCG., assistant surgeon. To proceed to Point Pleasant and Tuckerton, N. J., for the purpose of making a physical examination of certain keepers and surfmen of the Life Saving Service. July 7, 1904.

MCKEEN, F. H., assistant surgeon. Relieved from duty at New York (Stapleton) and directed to proceed to New Orleans, La., and report to the medical officer in command for duty and assignment to quarters. July 7, 1904.

SPANGLER, L. C., pharmacist. To report to chairman, board of examiners, Tampa Bay Quarantine, July 11, 1904, or as soon thereafter as may be determined by the chairman of the board, for examination to determine his fitness for promotion to the grade of pharmacist of the second class. July 1, 1904.

BOARDS CONVENED.

Board convened to meet at Washington, D. C., July 6, 1904, for the physical examination of an applicant for appointment as Second Assistant Engineer in the Revenue Cutter Service. Detail for the board: Assistant Surgeon General G. T. Vaughan, chairman; Assistant Surgeon A. J. McLaughlin, recorder.

Board convened to meet at Tampa Bay Quarantine, July 11, 1904, or as soon thereafter as may be determined by the chairman of the board, for the examination of Pharmacist L. C. Spangler to determine his fitness for promotion to the grade of pharmacist of the second class. Detail for the board: Assistant Surgeon R. E. Ebersole, chairman; Acting Assistant Surgeon G. H. Altree, recorder.

Board convened to meet at San Francisco, Cal., July 25, 1904, for the examination of Assistant Surgeons to determine their fitness for promotion to the grade of Passed Assistant Surgeon. Detail for the board: Passed Assistant Surgeon W. G. Stimpson, chairman; Passed Assistant Surgeon Rupert Blue; Passed Assistant Surgeon H. S. Cumming, recorder.

APPOINTMENT.

DR. WILLIAM R. PRYOR, Professor of Gynecology at the New York Polyclinic Hospital, has been appointed Attending Gynecologist to St. Vincent's Hospital.

SOCIETY NOTICES.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION. — The Thirtieth Annual Session of the Mississippi Valley Medical Association will be held at Cincinnati, Ohio, October 11, 12, 13, 1904, under the presidency of Dr. Hugh T. Patrick, of Chicago. The headquarters and meeting places will be at the Grand Hotel. The annual orations will be delivered by Dr. William J. Mayo, of Rochester, Minn., in Surgery, and Dr. C. Travis Drennen, of Hot Springs, Ark., in Medicine. Request for places upon the program, or information in regard to the meeting, can be had by addressing the Secretary, Dr. Henry Enos Tuley, Louisville, Ky., or the Assistant Secretary, Dr. S. C. Stanton, Masonic Temple, Chicago, Ill.

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION. — The fourteenth annual meeting of the American Electro-Therapeutic Association will be held at the Inside Inn, St. Louis, Mo., September 13, 14, 15 and 16, 1904. The scientific sessions will be held only in the mornings, leaving the afternoons free in which to visit the fair.

RECENT DEATH.

ADIN HUBBARD NEWTON, M.D., M.M.S.S., died in Everett, July 7, 1904, aged eighty-seven years.

BOOKS AND PAMPHLETS RECEIVED.

Damiana (The Mexican Tea), Turnera Aphrodisiaca. By John Uri Lloyd. Reprint.

Kerato-Conus. By G. Griffin Lewis, M.D. Reprint.

Hereditary Ectopia Lentis, with Reports of Cases. By G. Griffin Lewis, M.D. Reprint.

Ueber Rectalernährung. Kritisches Sammelreferat von Dr. Felix Reach. Reprint. 1904.

University of Pennsylvania. Contributions from William Pepper Laboratory of Clinical Medicine. Reprints. Philadelphia. 1903.

Transactions of the American Roentgen Ray Society. Fourth Annual Meeting, Philadelphia, Pa., December 9 and 10, 1903. Pittsburg: Murdoch-Kerr Press. 1904.

The Summer Diarrhœas of Infants, their Etiology, Pathology and Treatment. By H. Illoway, M.D. New York: E. P. Pelton. 1904.

Practical Materia Medica for Nurses with an Appendix containing Poisons and their Antidotes, with Poison-emergencies; Mineral Waters; Weights and Measures; Dose-list; and a Glossary of the Terms used in Materia Medica and Therapeutics. By Emily A. M. Stoney. Second Edition, thoroughly revised. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

A Text-book of Diseases of the Nose and Throat. By D. Braden Kyle, M.D. Third Edition, revised and enlarged. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Original Articles.

A CASE OF MORAL INSANITY WITH REPEATED HOMICIDES AND INCENDIARISM AND LATE DEVELOPMENT OF DELUSIONS.*

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

On Oct. 30, 1901, J. T., a professional nurse, about forty-five years of age, single, and born in this country, was arrested on the charge of murdering Mrs. M. G. at Cataumet by poisoning, on the 13th of the preceding August. There was sufficient ground for belief that she had also fatally poisoned, within the preceding six weeks, an entire family of three persons who were related to M. G. by marriage. The duration of the last illness of Mrs. M. G. was not over sixteen hours. The symptoms, which were similar in all the cases, were those of narcotic poisoning. M. G. went unexpectedly into a somnolent condition from which she could not be roused, and coma and death soon followed. The relatives who, as it was believed, met death at J. T.'s hands were Mr. and Mrs. A. P. D., her father-in-law and his wife, and Mrs. H. G., on all of whom she had been in constant attendance from the first.

Mrs. D. died on July 4, after an illness of eleven days. The illness was characterized by intermittent coma, often deep; in the intervals, drowsiness with occasional rousing up and partial consciousness; pupils contracted, but not firmly, with dulled sensibility to light; on one occasion improvement with rationality, succeeded by profound coma and death.

Mrs. H. G. who died July 31, was ill ten days or two weeks, with similar symptoms. She became dull and stupid, "moped around the house, and finally went to sleep and never woke up."

Mr. D. died Aug. 9, after an illness of seven hours in which somnolence predominated, and complete unconsciousness rapidly supervened.

They had all been in good health before the appearance of these symptoms. The nurse had for years been on an intimate footing with the family, who were attached to her and regarded her as one of themselves. Her services were offered at some suggestion of hers or theirs regarding trivial ailments, real or fancied. She gave enemata freely, and often administered medicines in that way.

These short and fatal illnesses, so much alike and of such an unusual nature, occurring as they did, one after another, in the space of a few weeks, finally aroused suspicions of foul play, which naturally centered in J. T. who had nursed and dosed the victims, and had only summoned the physician when they were at the point of death. That she was well aware of the sentiment against her there is no room for doubt, as she was not only pointedly questioned on the subject by several persons but was actually told by a relative of one of the deceased that she was suspected of causing the deaths. Notwithstanding this, we find her in her old home only a fortnight later in L. in attendance on Mrs. B., an old lady and friend, who is suddenly and unexpectedly taken ill soon after J. T.'s arrival, and dies within forty-eight hours of the first appearance of a train of symptoms closely resembling those in the case of Mrs. M. G. The analysis by Dr. E. S. Wood, professor of chemistry at the Harvard Medical School, of the organs of four of the bodies revealed the presence in each of more than sufficient morphine to cause death. In the liver of the other body, that of Mrs. D., he found very distinct traces of morphine. It was the only one not embalmed, and as it had been buried nearly four months the organs were in an advanced stage of decomposition.

One of these persons held a note of J. T.'s to the amount, it is reported, of several hundred dollars. Small sums of money belonging to three of the others were missed after their deaths, but there is no proof of the truth of these charges. There was no suspicion of theft from the third victim, and in the search for a motive in her case a threat of exposure was advanced by the relatives. While Mrs. B. was in the midst of her illness a detective called at the house, and in the room below the sick chamber questioned J. T. at length about the deaths of her last four patients, ostensibly with the view of fastening the guilt of murder upon another person. Throughout the entire interview she was calm and self-possessed, showing no trace of anxiety and talking freely and pleasantly. She made no attempt to implicate others. Not long after this she told one of her friends that a state detective had told her that she was suspected of the crimes and must prepare to defend herself.

She remained here about a month, entertaining her friends, — in the meantime writing the physician of one of her Cataumet victims, "I have been taking my vacation and am willing to come back any time for a case." On Sept. 29, and 30, 1901, she made two attempts to poison herself, probably with morphine, the last an apparently determined one. An emetic given after an hour and a half was followed by return of consciousness. She gave later, as her reason for these attempts, that she was jealous and desperate because a man of seventy years, a connection of Mrs. T., was very attentive to one whom he has since married. As a final attempt to induce him to break off this intimacy J. T. wrote him, from the local hospital where she was immediately sent, an absurd and abusive letter in which she accused him of being "the father of her unborn babe."

After leaving the hospital she made a visit to some friends in a neighboring state, of which she has lately written: "I never even thought of the investigation about the murder while at A. until I was arrested. I was having a fine time out there. I don't think I ever enjoyed myself as I did that fall. There was a jolly lot of people there, and I had the kind of time I like to have. I remember perfectly well the detective reading the warrant and saying, 'I have come to arrest you for the narcotic poisoning of Mrs. G.,' and

* Read April 21, 1904, before Boston Society of Psychiatry and Neurology.

even then I cannot think it made much impression on me. The funniest thing about it was that I was annoyed because the detective insisted on remaining in my room while I was getting ready, and I did not think it was very gentlemanly." She left the house, on her arrest, with perfect composure and without the slightest remonstrance. On the long trip to the jail she was at first thoughtful, but later talkative and in good spirits. She talked freely to the officers about herself, and seemed entirely willing, then and at the jail, before seeing her counsel, to admit her guilt, and showed little or no realization of her situation, a condition of mind which she maintained throughout her imprisonment and trial. She was indicted for the murder of three of her Cataumet patients, but her trial was upon only one count, that of the murder of Mrs. G.

On March 3, 1902, about four months after her arrest, the prosecution and defence effected an arrangement whereby Dr. Geo. F. Jelly, Dr. Quinby and the writer were called upon to conjointly examine and report upon the mental condition of the prisoner with reference to her responsibility. Thus the question was practically submitted to a commission at law, which allowed the examiners free interchange of opinions and impartial sifting of all obtainable evidence on both sides. In fact, it resolved itself into a medical consultation on the diagnosis of a case of alleged disease. A more practical and satisfactory method, and one more in keeping with the principles of scientific inquiry, could not have been chosen, and its adoption by the attorney-general in such an important case would seem to be a long step toward abolishing, in criminal cases at least, the opposite and customary practice which has done so much to discredit expert opinion.

The evidence upon which our opinion was chiefly based was in part furnished by the prosecution and in part collected by ourselves. Since the patient's commitment other facts antedating her arrest have been brought to light, and are here introduced for the sake of uniformity and completeness.

Her original name was Honora Kelly. In 1863, when about four years of age, she and a sister were placed in a foundling asylum by her father, an eccentric man who drank hard to the time of his death. She has two living sisters; one, a respectable and capable woman some years older who corresponds regularly with J. T., the other, a chronic dement in one of our state asylums. A third sister was adopted but turned out of doors when found to have an illegitimate child. She led a dissolute life and died recently.

When about six years of age Honora was apprenticed to Mrs. T. on indenture papers, and took the name by which she has since been known. She was given a good education, proving intelligent and quick to learn. Mrs. T. brought her up as a daughter and she was "made much of" by the family. Until J. T. was a woman she was under good moral and religious influences, home surroundings and discipline and had good associates, but her incorrigible propensities for deceit, falsehood and trouble making, never absent from the first, proved too much to contend against, and her mother finally refused to let her remain longer in the family. Her impossible tales and her lies, often senseless and doggedly persisted in, despite positive proof of the falsity, are well remembered in the neighborhood.

At twenty-eight she began her career as nurse by four years of training and service in two general hospitals. There she showed much capability in the technical part of her duties. "She knew how to take good care of her patient but did not like to work." Although not of attractive appearance, she had a pleasant manner, and was wonderfully clever in ingratiating herself with such patients and physicians as she wished to please, and remarkably skillful in escaping the consequences of wrong-doing and in implicating others. Her hospital life revealed her earlier tendencies, but aggravated in form and more serious in results by reason of the greater opportunity for their exercise. Among the nurses, also, she made friends. One of them states, nevertheless, that she was looked upon as "queer" and "peculiar" by her fellow-workers because of her unfounded and absurd suspicions, tale-bearing, slanderous gossip and consequent mischief-making, as well as her pleasure in inventing fabulous tales. In several well authenticated cases she attempted, by charges afterwards found to be false, to procure the removal of patients from the institutions, and succeeded in two instances. In connection with one of these cases she wrote one of the patient's friends, who had met her only casually, a peculiar letter, stating that as he had made inquiry about her family (which he had not done), that she was quite willing to tell him that her brother was in an insane asylum. She then went fully into her family history. On the other hand, she is known to have prolonged the illness of favorite patients whom she wished to keep in the hospital, by reporting symptoms that did not exist and falsifying temperature records. In other cases she reported false temperatures for no obvious reason. During her term of service at one of the hospitals many articles were missed: sums of money, stationery, aprons, uniforms, etc., and she was suspected of stealing them, but her friends spoke so well of her and she was so adroit that the suspicion went no further, in spite of the evidence against her. In administering medicines she was extremely reckless and frequently gave larger doses than had been prescribed. Even at that time she was often heard to say that there was no use in keeping old people alive (a favorite sentiment with her since). She was also fond of asking about poisonous drugs and their antidotes.

In view of the long wake of sudden and mysterious deaths of patients, which has followed this woman throughout her career as a nurse, the following incident of her hospital life is at least worthy of passing notice. Miss D., a nurse, who had a slight illness, was put under her charge by day and was soon seized with sudden and extreme collapse. By much effort she was brought out of danger in the course of the night. When J. T. came on duty the next day the same symptoms reappeared. Another nurse was put in charge and the patient recovered. Some time afterward J. T. asked a head-nurse if she had heard that Miss D.'s condition had been due to poison.

She was at that time, and has often since been, suspected of the opium habit, because of her strange conduct. This is of course possible, but careful inquiry, as well as long observation of her at times when such a practice if previously indulged in to a great extent would have been revealed in the characteristic symptoms which follow sudden deprivation of the drug, have failed to show any such addiction. More-

over, her general conduct has been the same or more marked in situations where opium-taking was impossible. No tendency to sexual immorality or to drinking habits was ever noticed in her so far as we can learn.

She was discharged from both hospitals, in one instance just as she was about to graduate from the training school.

On leaving the hospital she took up private nursing in which she was for many years very successful, inspiring certain families, not a few of them of high social position, with confidence in her skill and affection for herself, in spite of caution from physicians who knew her record. She was "greatly liked and trusted" by one family who unsuspectingly employed her after the death of one of their number at her hands. Experienced and able physicians recommended her for a time on account of her capability. Her own friends who know her better speak of her jealous and vindictive nature and bad temper. Her conduct was considered "strange" by not a few — just in what way they cannot specify. As to her propensities for falsehood one person reports: "She had an extraordinary facility for inventing lies and remembering the lies that she told others." Another: "She is a constitutional and clever liar, but I did not find it out until two years ago." Her passion for trouble-making for its own sake, by carrying tales true and false and insidiously fomenting enmities, for no apparent reason, though far less readily and generally realized than when she was at the hospital, came gradually to light. She borrowed money from patients or their relatives which she never repaid and, although she earned a good living, had many debts, which, however, gave her little concern. Occasionally, small sums of money and articles of clothing disappeared where she was employed, but she was rarely suspected and never detected in theft nor, to our knowledge, directly accused of it. Accepting her guilt in this respect as proven, however, the fact that, except in a few instances, they were all petty thefts, and that in many cases nothing whatever was missing, plainly shows that money gain was not a controlling motive for her homicides. She undoubtedly prolonged some cases for profit, but on the other hand cut short many that might have proved equally lucrative, by poisoning the patient. She set four fires, but gave the alarm and helped vigorously to put them out. Two were set in the same house in order to frighten a nervous patient and retard her improvement. The others occurred in cottages of her friends.

Her general conduct toward the end of her career as nurse is suggestive of increasing demoralization. Her stories grew more sensational and preposterous. She caused, for example, some consternation by an utterly baseless report of a severe epidemic of typhoid in a neighboring seminary. She repeatedly maligned physicians who had employed her to other physicians and to patients, and even criticised the method of treatment in the presence of physician and patient. In spite of this, she retained to the last a number of friends who thoroughly believed in her.

We have also been able to satisfy ourselves that to crown this career of crime and disordered conduct J. T. committed 20 homicides, 12 of which she admitted at the time of our examination. While in jail she made a list of 31 of her victims, giving names and addresses or other means of identifying them. Her statements regarding the 20 homicides are abundantly verified in 4 by the character of the symptoms and by autopsy; 12 are sufficiently proven by careful accounts of the train of symptoms magnanimously and freely given the writer by the attending physician in each case, which were in every instance but one characteristic of narcotic poisoning, and which they now agree to have been the cause of death; and 4 have been fully, and we believe faithfully, described by immediate relatives. Of the 11 deaths reported by her, above this number, 4 are yet to be investigated, but seem suspiciously like the others in causation; in 2 the whereabouts of the family are now unknown; while in 5 there is too much uncertainty as to the precise cause of death to warrant including them among her victims. Space will not admit of further description of these cases than has already been given. The manifestations were strikingly similar. All but one of the cases — in which strychnia was plainly the cause of death — showed all or most of the following symptoms: drowsiness, full, slow pulse, contraction of pupils, stertorous breathing, cyanosis and slow respiration. A not infrequent feature was the subsidence of the coma for one or more intervals, and the patient's return to full or partial consciousness until finally put to death. A number of her victims were patients of one of her chief benefactors and includes one of his connections.

Among her effects a much-worn textbook on poisons was found which fell open at the chapter on opium.

At our first interview at the jail, she seemed for a time somewhat serious and distrustful, but soon became at ease and talked freely and volubly. She appeared quite indifferent to her situation and seemed to regard our visits chiefly as pleasant breaks in her monotonous life. Her talk was more or less rambling and rather irrelevant. Her utter mendacity and disposition to speak slurringly of even her best friends and to make accusations against them, almost without exception — to praise one minute and blame the next — was very marked. We therefore soon found that we should be obliged to depend largely for our opinion upon facts obtained from others, accepting as true only such of her statements as were corroborated by reliable evidence.

She told many tales which we knew to be sheer inventions, among them, a story of her parentage, her alleged father having in reality lived in China for two years before her birth; another, of her horror of the dead which was so great that she sometimes fell senseless at the sight of dead bodies, even those that had died a natural death, the fact being that she had often laid out bodies with her own hands as a matter of course. Her attempts as suicide she narrated with glee, but admitted that the last was a serious one, and for the most part adhered to her story that jealousy had prompted them. She also stoutly denied that she had ever stolen anything or been dishonest in money matters, although admitting that she had failed to repay loans of money and that she had always been slack and "mixed up" in money affairs. At first she denied also that she was guilty of the homicides with which she was charged, but finally, and by no means unwillingly, confessed (although advised not to incriminate herself) that she had poisoned twelve patients and had made two unsuccessful attempts to poison others. She also admitted that she had set four fires, two of them at the residence of a patient under her charge. She told of the deaths with calmness, adding eulogistic remarks. The poisonous agent employed was, according to her story, always morphia, occasionally combined with a fatal dose of atropia. She could not remember the details in all cases because, as she remarked, "poisoning had become a habit of her life."

The facts: first, that her favorite method of ad-

ministration of the drug was in Hunyadi water or by enemata because the drug could in these ways be given without the knowledge of the patient; second, that when possible she did not summon the physician until the victim was moribund; and finally, that she sometimes so combined drugs in kind and proportion that their resulting effect was an unusual and perplexing set of symptoms, made it most difficult and in some instances impossible for the physician to ascertain the true nature of the patient's illness. A request for an autopsy by the physician, moreover, invariably met with refusal through J. T.'s vigorous opposition to the suggestion. This accounts in large measure for her long immunity from detection, and it seems probable that if she had not, in her increasing mental demoralization, so far abandoned herself to her craving for poison-giving as to put to death with the same drug or drugs four patients in one family within forty days, many more victims might have been added to the list.

In planning and carrying out her homicidal acts she was, she asserted, always calm and clear-headed. After administering the poison she always experienced great relief and went to bed and slept soundly. In one case she took to bed with her the child of her victim after administering the fatal dose [a fact], and in another she lay on the bed with the patient whom she had just poisoned "and had a long sleep." When it was too late to undo her work "she would work like a Trojan to save the patient," according to her statement, although in one case, at least, she took this opportunity to repeat the dose and make sure of her victim. In two instances she claimed to have been seized with compunction, and left the case after sending for another nurse. One of the patients was saved in consequence. For much of the time during the interviews she manifested a lack of seriousness and often a levity which was in marked contrast to what was to be expected of one who had been brought to confess so many heinous crimes. She understood clearly that she had done wrong, but did not manifest the slightest sign of remorse for her crimes, not, as it seemed to us, through any spirit of bravado but for the reason that she did not comprehend the enormity of her acts; she professed total indifference as to the outcome of her trial except that she preferred the prison to the asylum. Electrocution apparently had no terrors for her. "When I try," she said, "to picture it, I say to myself, 'I have poisoned M., my dear friend; I have poisoned Mrs. G.; I have poisoned Mr. D. and Mrs. D.' This does not convey anything to me, and when I try to sense the condition of the children and all the consequences I cannot realize what an awful thing it is. Why don't I feel sorry and grieve over it? I cannot sense it at all."

The question as to what prompted her acts was the signal for the shameless recital of a story of sexual excitement occurring in the presence of a dying person, as the motive — a statement which was all the more startling by reason of the absence of sexual immorality from her history, so far as could be ascertained. For a time we were of the belief that irresistible sexual impulse might be the real explanation of at least some of her acts, but on further examination, her representations as to the nature of this impulse and the conditions attending it were found to be so conflicting and so at variance with any known form of sexual perversion that feigning was suspected, and at the last interview, she admitted, as stated in our report, that she did not know why she killed these people, and that it was not from desire to experience sexual excitement. It was finally apparent that the story was a pretense throughout, concocted, and most unnecessarily as it happened, in order to prove her insanity and irresponsibility by reason of irresistible sexual impulse. There seemed to be a nearer approach to the truth in the statement that for at least the year past she had been tempted to do all sorts of criminal acts, and during the preceding summer especially, she had "let herself go." Among others she had strong impulses to set fires and could get no relief from her feeling of uneasiness but by yielding to the temptation. It is a fact that when once they were started, however, she worked her hardest to put them out. She finally said, in regard to her homicides, "I seem to have a sort of paralysis of thought and reason. Something comes over me, I don't know what it is. I have an uncontrollable desire to give poison without regard to the consequences. I have no objection against telling my feelings, but don't know my own mind. I don't know why I do these things." The last statement carried an air of truth with it in the manner of its telling and seemed to accord well with her general mental condition.

So far from having delusions of enmity or persecution, she spoke of most of her victims as her friends, and denied any hostility on either her side or theirs. In fact, all our efforts failed to reveal anything of the nature of delusion or hallucination in her mental condition at any of the interviews. Her behavior also was the opposite extreme of that of most patients with concealed delusions, whose reticence and distrust are marked features.

The main points in the summary of our opinion as to the prisoner's mental condition, which concluded our report to the attorney-general and counsel for the defence, were in substance as follows:

"1. The prisoner, J. T., comes of a family in which intemperance and mental weakness and disorder are prominent disease features.

"2. Her utter lack of moral sense has been evident from childhood in her incorrigible proclivity to falsehood, dishonesty, mischief-making, general unreliability and probable theft. The good moral, mental and religious training which she received in her youth resulted in no modification of her character, and were practically thrown away on her in that respect.

"3. Her moral insensibility is further apparent in the absence of sense of fear before, during or after the commission of her crimes, and of remorse, sorrow or genuine affection at any time. This defect is even more forcibly shown by the fact that her chief victims were her especial friends.

"4. Her lack of any appreciation of her situation, her levity under such circumstances, and her inability to realize the enormity of her deeds are strong evidences of mental weakness.

"5. That an irresistible propensity propelled her to crimes of arson and murder is shown by the great frequency and variety of such acts and her continuance in them, regardless of consequences.

"6. There is an absence of any apparent motive for her criminal acts in some cases, and inadequacy of motive in many of the others. This is shown in the total lack of evidence of pecuniary gain or satisfaction in revenge as a rule, except minor thefts and transient enmity. These would

be powerless with sane criminals as incentives to habitual homicide.

"7. The prisoner's disease-history and present mental state correspond with a well-recognized form of mental disease of a moral type due to congenital degeneration, in which there may be little or no intellectual disturbance that is apparent to the ordinary observer.

"Therefore, we are of the opinion that she was insane and irresponsible at the time of the homicides with which she is charged, and is so now; that, her disease being constitutonal, she will never recover, and that if ever at large again she would be a constant menace to the community."

The salient features of the case which indicated more especially irresponsibility were: lack of moral understanding, of natural feelings and of the ordinary motives for conduct including criminal acts, also the general absence in her of sufficient self-control to restrain her from crime, and her disregard of consequences as shown, for example, in continuing to poison patients in full knowledge that her guilt in other recent cases was suspected; by her desire to confess her guilt at the outset; her indifference to her fate, etc. These facts seemed to us to evidence her inability, both to help doing what she did and to be affected by punishment, conditions which are the best tests of accountability.[1]

The results of the anthropometrical measurements and physical examination of the patient by Dr. H. W. Miller, pathologist of the Taunton Insane Hospital, are as follows:

Physical examination. — Height, 5 ft. 3 in.; weight, 166½ lbs.

A well developed and well nourished woman. Hair black, streaked with gray. Complexion somewhat sallow.

Craniometric examination. — Circumference of head, 51.8 cm.; antero-posterior diameter, 17.8 cm.; greatest transverse diameter, 13.6 cm.; cephalic index, 77.6 cm. (slightly dolichocephalic); naso-occipital arc, 31.5 cm.; bregmato-lambdoid arc, 11.8 cm.; binauricular arc, 31.5 cm.; binauricular diameter, 11.8 cm.; facial length, 11.7 cm.; mid-frontal diameter, 13.5 cm.; breadth between pupils, 6.6 cm.; length of ears, right, 6.4 cm.; length of ears, left, 6.5 cm.

These measurements are all well within physiological variations.

Ears, detail well defined without stigmata.

Eyes, brown, palpebral fissure of normal width. No limitation of normal field.

Palate, low and broad but symmetrical.

Nose, no deviation or anomaly of the nose.

Teeth, false set in upper jaw, those in lower jaw regular.

No facial asymmetry.

Extremities: Symmetrical. Forearms, 40.2 cm. from elbow to tip of middle finger. Middle finger, 10 cm. on both hands, last phalanx of thumb 3 cm. on both thumbs. The little finger on each hand is flush with the last joint of the third finger. Finger nails normal.

No general body anomalies.

Special senses: Hearing acute; smell and taste normal; sight unimpaired; color sense keen.

General sensory condition: Examination of tactile, pain, pressure, and muscle sense offers no abnormality.

No errors of motility.

No trophic disturbances.

General feeling of well-being.

Reflexes: Show nothing of significance. Knee jerks sharp, normal plantar flexion, pupils equal, regular, react promptly, directly, and consensually.

A few tremors of tongue and extended fingers were present at time of examination but were transient.

Respiratory and circulatory systems reveal nothing of note.

Abdominal organs healthy.

Menstruation irregular for two years (every two weeks). Previous to that every fourth week.

Whatever view may be taken of this remarkable case, there can be no question that the moral monster thus far depicted is a striking illustration of so-called moral insanity, a condition described in most works by recognized authorities, from Pritchard to Kræpelin and Wernicke, as a probable form of mental disease or defect. Its existence as a definite morbid condition has been repeatedly questioned, and its name criticised as inadequate and incorrect. "Moral insanity," however, has so far held its own that all alienists of to-day recognize that the term means a certain condition or kind of mental abnomality which is *sui generis*. It fits no other form of mental unsoundness. The progress of psychiatry has seen so many nosological terms discarded that it is remarkable that "moral insanity" should remain and flourish, thus demonstrating its practical utility as a term and its real value as a morbid mental condition. "Moral imbecility," a more accurate designation in some respects and in use by certain authors, apparently has not been found sufficiently descriptive of every grade of moral lunatic to secure general adoption. The true understanding of moral insanity has been greatly obscured by confounding it with purely symptomatic conditions, syndromes and stages of other forms of insanity; for example, the moral obliquity unaccompanied by apparent intellectual perversion which sometimes occurs as a distinct stage of dementia precox, or as an equivalent of the "maniacal" phase of manic-depressive insanity, or as the prodromal stage of general paresis.

Moral insanity belongs to the group known as insanities of degeneration, and is better termed degenerative insanity of the moral type. It should be exclusively reserved to designate a congenital, primary, constitutional and permenant mental condition affecting the moral nature and unassociated with *evident* intellectual impairment. These patients have good memory and understanding, ability to reason and con-

[1] The ability to discriminate between right and wrong as the sole test of responsibility fails in this case for the same conclusive reasons that have rendered it valueless in a great many others, and have caused it to be rejected by all alienists and most jurists of to-day. It takes no cognisance of the power of personal restraint and inhibition. An insane person, as all psychiatrists know, may know right from wrong in the abstract, may understand that a certain act is unlawful and wicked, but may be unable to control himself through weakened will power (the result of hereditary defect or disease), or when goaded to desperation by persistent delusions and hallucinations. "In fact, the cases of insane criminals in whom there is no knowledge of right and wrong or who do not know the nature and quality of the acts they commit are very few indeed."— (McPherson.) It was one of the highest legal authorities of England, Lord Chief Justice Cockburn, who declared twenty years ago that the power of self-control when destroyed or suspended by disease was an essential element of responsibility.

trive, much cleverness and cunning, and a general appearance of rationality, coexistent with very deficient control, absence of moral sense and human sentiments and feelings, perverted and brutal instincts, and propensities for criminal acts of various kinds which may be perpetrated deliberately and cleverly planned, yet committed with little or no motive and regardless of the consequences to themselves and others. This latter point is important as indicative of a perversion of the fundamental instinct of self-preservation (Kellogg). In their general conduct, also, these individuals are rarely governed by the same motives that govern sane people, whether criminals or not, and it is often difficult to see what the motive is. As Esquirol truly says, "crime is a means for the criminal and the end for the lunatic." They commit crime for crime's sake. In J. T. most of the classic manifestations of the disease are typically and faithfully reproduced. That none of the physical stigmata of degeneration should be present is noteworthy but not exceptional, as Lombroso,[2] for example, finds anomalies of the cranium and physiognomy absent in 58% and 64% of moral lunatics, respectively. Of that distinctive and negative feature of the disease, the almost complete absence of intellectual impairment, Hack Tuke[3] goes so far as to say, "It is perfectly certain that it may be practically impossible to detect the intellectual flaw, and yet a physician may be driven to decide that a person is insane," and it is a recognized fact that, while a few of this class fall short of the average individual in intelligence, many are fully up to it and a limited number even surpass it.[4] Others urge, and our experience inclines us to agree, that careful investigation will always reveal intellectual involvement in genuine cases, sooner or later, and such patients certainly share some traits in common with the imbecile; witness their imperative and characteristic propensity, which seems to be a necessity from which they cannot escape, for telling purposeless lies and, like children, inventing fabulous tales. This is marked in J. T., but still more in this line of mental defect is her innate and irresistible bent for trouble and mischief-making which she finally carried to such an extent as to deliberately alienate her friends and benefactors among physicians — a weak-minded senselessness of conduct which showed fatal disregard of her own interests. If her friends were blind to her glaring faults and dangerous propensities it is hardly to be wondered at that they should fail to recognize that underlying "intellectual defect [in moral insanity] which," to quote Westphall, "is of a peculiar kind, is often concealed under a mask of perverted moral sense and requires time and patience on the part of the physician for its detection." J. T.'s fundamental intellectual weakness is further and strongly emphasized in her hospital history, as will be seen.

[2] "L'Homme Criminel." (Tr. from the Italian.) 1895. Vol. ii, p. 8.
[3] Dict. Psychol. Med., p. 814.
[4] McPherson, Mental Affections, p. 310.

But in what respect this case and others of its class differ from mere criminality is, of course, the main question. We can, at the start, readily eliminate the occasional criminal, the criminal by passion, the habitual, professional criminal; but to differentiate between the morally insane and the instinctive criminal, especially in the light of Lombroso's exposition of their analogy, is a difficult matter. It is this question that is and always will be a battle ground for the criminologist, the alienist, and the jurist, in spite of Lombroso's conclusion that both views are right and that they are one and the same thing. To our mind the very term implies a mental flaw, for what is instinctive criminality but perverted instinct, the very nature of which has made these persons lifelong enemies to society, and has rendered impossible a natural manner of feeling and acting, to the extent that in spite of good education and environment, habitually wrong conduct and actual crime become right to all intents and purposes and the ruling principle of life? It seems to us to resolve itself into a question of degree, and if Lombroso and his school should gauge instinctive criminality by the proportionate extent in each of these individuals of ordinary crime and culpability on the one hand and of mental defect and perversion on the other, wide differences would certainly appear which would compel them to classify many as indubitable criminal lunatics, and others as mere criminals, leaving an intermediate or borderland class whose condition cannot be satisfactorily differentiated. This is very evident in the enumeration by the great criminologist of many and marked symptoms which he admits that subjects of moral insanity share with those whom he acknowledges and classifies as insane criminals.

No absolute rule can be laid down by which we can differentiate between moral insanity and moral depravity, and there is no other disease in which the study of *ensemble* of its manifestations is so important. One may single out separate acts or sets of acts of a subject of moral insanity, and see in them only the manifestations of ordinary criminality. It is only when these are viewed in their entirety and in relation to the heredity, environment, education, social status, mental and physical organization and disease-history of the individual himself that we can decide how far his acts are under his control, and whether or not he is insane and irresponsible. It would be as questionable to label and treat as insane certain of the least pronounced subjects of this class as it would be wrong, both ethically and scientifically, to stamp as merely culpable criminals and to send to prison the extreme and typical ones like J. T. The former, whose condition approaches more nearly the borderland of sanity, are for that reason more susceptible to punishment and other incentives to right conduct. They bear prison life well and are none the worse for the discipline. The well marked, distinctly pathological cases, however, are for the most part turbulent, crafty and

unmanageable in the extreme, cannot be affected by punishment, greatly interfere with the discipline of others and are the despair of prison officials. Because of their defective control and susceptibility to criminal impulses, the associations and punitive measures of the prison also tend to make them deteriorate faster and to grow more intractable. The ordinary hospital for the insane is equally unsuitable for them, as they unsettle and excite their fellow patients and interfere with their management and improvement. Besides, association with criminals adds another terror to insanity. The special asylum for the criminal insane is, therefore, the only proper place for them, and it is still another argument for their insanity and irresponsibility that every criminologist advocates such confinement for them with this, the worst, class of the insane. There is, unfortunately, no special provision in Massachusetts for the care of female criminal insane, as their number is so small.

On June 3, 1902, J. T. was tried and found not guilty by reason of insanity, and thereupon committed to a state insane hospital for life. Her attitude at the trial was more that of an interested and appreciative spectator than of a prisoner on trial for her life.

Through many visits to the patient during the past two years and free access to the records of the Taunton Insane Hospital where she is confined, we have been able to follow her case which has undergone a striking development, as will be seen.

On her admission she talked freely about herself to the hospital physicians and, although she showed her inborn tendency to deceit and falsification in many ways, the fact that she had no longer anything to gain by misleading others with regard to her mental condition gives a certain weight to the most consistently maintained of her statements. She reluctantly acknowledged, as she does to-day, that she poisoned 31 patients. She would not say that she was not insane but wished to know what her insanity consisted of. "I don't appear like these other patients. I can read a book intelligently, I don't have bad thoughts, so I don't see where moral degeneracy comes in." When asked if she had noticed any change in disposition in recent years she said, "No; I feel absolutely the same as I always was. I might say I feel hilarious, but that may express it too strongly." As to the feeling of fear, she replied, "As far as I have any knowledge of that feeling, I never showed it. I cannot recall any time that I was frightened. I used to be the wonder of my mother. I have never felt it throughout this affair." She has certainly never been affected except pleasantly by sudden explosions or threats of patients on the wards from the first.

During the first year of her life at the hospital she was, as a rule, sociable, quiet, cheerful, amiable and spasmodically helpful, and spent much of her time in reading. The change from the seclusion of the jail to the more active life of a large hospital ward interested her, and the air of discipline was effective in temporarily repressing her tendencies. In this period she grew fat, was in excellent physical condition, and wrote her sister: "Just think, I've been here a year and find myself fond of the people and warmly attached to the place in some ways. Yes, we are well cared for, kindly and considerately." She soon developed a fondness for the company of the patients, especially the most demented, in preference to that of the nurses.

The following statement by Dr. J. P. Brown, the Medical Superintendent, is the hospital record of April 22, 1903, about a year from the time of her commitment. It practically represents the opinion of the entire medical staff as to her condition at that time:

"My study and observation of J. T. since she has been in the hospital gives me the opinion that her mental disease should be classed as moral or affective insanity. She seems to me to be wholly devoid of moral sense, or a clear apprehension of what is right or wrong as to her relations to other people or to society. In all my conversations with her respecting the homicides, which she freely admits, she has expressed no remorse, regret or sorrow for any of them, but rather a sense of pride and satisfaction that the number was so large as to give her distinction above all other poisoners whose histories are known.

"This lack of pity and sorrow for others in trouble or distress has been evident whenever any difficulty has occurred on the ward between patients, or between a nurse and patients. At such times she has manifested a good deal of glee, and laughed like a silly child, but never has expressed any sympathy or pity for the patient or person in distress or trouble. Trouble or pain for others seems to excite in her merriment and joy instead of sorrow.

"In her association with other patients she has exhibited a special fondness for the demented, and especially for one who has openly practiced self abuse; and once she got into bed with her after the patient had been put to bed for the night.

"In speaking of the homicides, she says that at the time she committed them she was not conscious of committing any crime or doing any wrong for which she should justly be punished; that the thought of doing wrong did not enter her mind, and gave her no concern whatever; and at the present time she apparently has no comprehension that the decree of the court in committing her to the hospital was right and just, and must be obeyed; and she asks for her freedom as though it could be granted on the same basis as that of any other patient.

"Recently, during the past three or four months, she has seemed more moody and emotional, either depressed or exhilarated at short intervals, and has exhibited less self-control, and with it she gives one the impression that her mind is weakening, and that she has less mental grasp of past and present events, and of her relation to her surroundings. Of this she seems to be painfully conscious herself. She has been observed to be laughing immoderately to herself, and when it is noticed by others she blushes as though she would conceal it, and seems confused.

"This weakening of her mind as time goes on is what is to be expected, and will probably continue. In every case of moral or affective insanity there must be more or less impairment of what are called the intellectual faculties in distinction from the moral, especially reason, and judgment to decide ethical questions presented to the mind, otherwise the moral obliquity and perversion would be controlled, and the criminal act averted.

"From my examination and observation of her since she has been under my care, and my knowledge of her previous history as made known to the court before her sentence, I am of the opinion that she is

insane and irresponsible, and that her mental disease, resulting as it probably does from ancestral vice and degeneracy, which her family history so far as known clearly indicates, is incurable."

Even at this time an undercurrent of suspicious thought came to the surface in doubts of the intentions of people toward her. She even wrote her sister in Chicago, "Sometimes it strikes me you are one of the gang. If you have fooled me also I shall say d—n. Oh d—n anyway."

Her complete indifference to the character of her surroundings, her frivolous talk, contradictory sentiments, frequent, causeless laughter, open pleasure at the trouble of others, glee at situations of obvious personal discomfort to herself, and general and utter lack of more than occasional seriousness at her situation, present and future, or actions in the past, show most plainly a dominant tone of mental weakness such as is only to be found in the imbecile. This is well shown by extracts from her letters: "I've had a real good time in the sewing-room for the past two days. I never can say that I like to do a thing until I get some fun out of it, and I really had quite a lot of fun. I suppose it has been here [in me] ever since I have been here, but I haven't seen it. . . . Truly, I had a great, good time at the Barnstable jail after the first ten days, even then I did not have a bad time." June 28, 1903, referring to an incident when on a visit to a friend: "It has left me rolling on the floor [with laughter]. I begin to feel like rolling on the floor now. I like to feel that way. I am having a big time, big" [in the sewing room]. March 8: "Don't ever ask me in your letters what I mean by what I write, I don't know myself — I'm talking through my hat. Nellie told me once that you said I made you dizzy when I got to talking and laughing. I laugh now, Mary. I nearly bust myself laughing this past week. I don't like the locality I live in either." July 8, 1903, after greatly disturbing the ward at night with a violent fit of screaming for no obvious cause: "I meditate and praise and pray all the time, and shall be ready at the end to take vows and become Mother Honora of the Seven Wounds." In one of her thoughtful moods she writes, "I do grieve to be in this state, I do, when I have thought force enough to think it out. When I am discontented I ask myself what I want and I don't know. A change of any kind seems torture to me even to think of and why I want to live this way I don't know. . . . Never mind, Mary, the fact remains that I have had a bully time in life in spite of everything." "I never feel that I am having a real good time when I'm behaving." Oct. 4: "I am still furnishing material for the drama of the 'unpopular lady.' I do wish I could behave myself for it all tires me so now, but I shan't probably till my last breath."

By December, 1903, she had become generally antagonistic toward all about her, as well as highly suspicious and irritable. She wrote voluminous tirades against the hospital and its management, treatment of patients, etc., making wholesale and absurd accusations and denunciations, some of an entirely delusional nature. She writes her sister, for example: "Do you know, the supervisor put some poison in my tea. A patient saw her and told me and I didn't touch it. The lady heard the supervisor say she had fixed J. T. this time." Apropos of special diet offered her she writes, "No, I thank you, Dr. Brown, I will stick to bean soup and keep safe above ground and out of Dr. Miller's [the pathologist's] hands. Some steak strikes some people right. This steak is sure death." Again, in a letter to her former counsel, she speaks of him as one of the "gang" who is managing her case, all the physicians and nurses of the hospital being included. She continued to write in this strain although told that such letters would no longer be forwarded. Dr. Brown also reports the following statement made to him by the paitent: "I don't wish to associate with the low and vulgar people that are employed in the sewing room. They talked about me before the other patients in a low and vulgar manner." She then described a revolting scene, impossible on its face, as enacted by the two employees in charge, self-respecting, modest women, and gave a circumstantial account of talk and actions on their part of the vilest kind, in a manner highly suggestive of delusions of persecution and hallucinations of hearing. At this time, also, she is reported to have grown very neglectful of her personal appearance, even having to be told to wash her face. She had become very abusive to the nurses, defying their authority and inciting patients to do the same, going so far as to shout to a melancholic whom the nurse was trying to feed, not to eat the food as it was poison. Her physical condition had fallen off greatly. She had lost fifty pounds in weight in a few months, in consequence of her refusal of food because of false belief in regard to it. Owing to her weak condition she was removed to the infirmary. There she became more disturbed, as well as destructive and dirty in habits, enraged and somewhat violent, threatening to kill her nurses, etc. By February, 1904, she was greatly emaciated, having lost over eighty pounds, or about half her normal weight, and was so weak that forced feeding with the tube was resorted to for several days, since which time she has eaten voluntarily, but just enough to avoid being fed again. The artificial feeding was only resorted to after persistent persuasion and every possible measure to induce her to eat had been tried, including special articles of diet from the superintendent's table. A thorough physical examination revealed no evidence of bodily disease.

On a recent visit, March, 1904, she was found by the writer in good spirits, talking volubly and aimlessly at the nurses. She began at once on a tirade against the hospital, its officers and all its belongings. She insisted that everything was "rotten," that the meat was "embalmed" beef, etc., etc. She persisted in these complaints after being told that we had just eaten the dinner provided for her which we found nutritious and palatable. Everything was filthy, she said, even the brick walls which must be "saturated with the filth of years"; the water supply (which is taken from an artesian well) was "polluted with sewage"; the vegetables were "rank poison." She spoke rather anxiously about a general feeling of numbness, and asked what was the cause of it. She was entirely inaccessible to explanation, argument, or even positive proof as to the impossibility of her statements. Occasionally she would burst out unexpectedly with peculiar and piercing shrieks of laughter which would seem impossible to one in her weak condition.

Many of her indiscriminate and senseless charges seemed to be rather the expression of an insane malignity toward everyone than the outcome of genuine belief that they were true. But we were, at the same time, convinced beyond a doubt that she was also suffering from strong and genuine delusions of persecution by poisoning, because her belief in this regard so consistently influenced her conduct that her refusal of food had practically reduced her to a skeleton, and repeated forcible feedings had no effect in changing her convictions. Her persecutory ideas vary in strength from time to time, but the delusions of suspicion from which they spring remain unshaken.

FIG. 1.

FIG 2.

FIG. 3.

FIG. 4.

FIGS. 1 AND 2. Appearance during first year at the hospital.
FIGS. 3 AND 4. Appearance during second year at the hospital, after a period of refusal of food due to delusions of poisoning.

The following letters evidently coming from the heart, are characteristic of delusional insanity:

"MARCH 15, 1904.

Dear ——: I am the victim of nerve paralysis, the result of food. I have to eat or I am fed with a tube with nerve-paralyzing food that I choose from the tray. Oh, I think that you and —— were criminals to put me through this. It was an awful thing to do to any human being and I have my opinion of everybody who takes a hand in it. I think it has been a most noble (?) piece of work. I think as the nerves of my body get more benumbed my brain becomes clearer to the outrageous course that has been taken with me. I suppose the next thing, something will be given to put me out of the way altogether. That would be a mercy to this J—— T——."

"TAUNTON LUNATIC HOSPITAL,
July 4, 1904.

DOCTOR STEDMAN: I wish to inform you that I am alive in spite of the deleterious food which has been served to me. Many efforts have been made to poison me in this institution of that I am very sure. I am thin and very hungry all the time. Every nerve is calling for food. Why can't I have help? I ate a pint of ice cream and four oranges Saturday and Sunday. That was all. J——T——.

NORAH KELLEY."

It is worthy of note that, as would be expected in an insanity of the hereditary-degeneration group, the mental deterioration takes in this case the form of delusion rather than dementia.

In this after-history we find, brought into bold relief, the inherent, underlying defect of weak-mindedness which was noted, but only obscurely seen, earlier, for want of opportunity for proper observation, and also the outgrowth therefrom of pronounced intellectual change in the shape of positive delusions. These, together with the other and characteristic manifestations, afford the strongest confirmation of the patient's insanity, intellectual and moral.

The development of a delusional state in the course of moral insanity is, apparently, not uncommon, and affords another and strong argument for the contention that intellectual involvement in some form is an essential feature of the disease, or, in other words, that there is no such thing as a mental disorder affecting the moral sphere alone. Delusions are reported as occurring late in the disease, if at all, suggesting a secondary condition or stage. Comparatively few descriptions of moral insanity include this feature, perhaps because the few cases that reach the hospital for the insane either are not closely observed late in the disorder or, if followed up, have not been recorded, and thus the picture of the entire disease-process as revealed in a certain proportion of cases has been left unfinished. Another and, to our mind, weighty reason is that most of the morally insane are sent to prisons where they rarely come under the observation of alienists. When their insanity has fully and unmistakably developed they are perhaps transferred to institutions for the chronic or criminal insane, where they pass for cases of chronic delusional insanity or dementia. That this view is not overdrawn is plain, even from Lombroso's [6] accounts of the history of a number of prisoners of this class with reference to their intelligence, in some of whom delusions of suspicion and persecution are noted and in others a decided paranoiac tendency is evident. Schüle [7] says of them, "they may develop neuroses, somnambulism, periodical insanity, hypochondria. Dagonet [8] even finds acute delirious mania and hallucinations in the course of the disease. Arnaud [9] concludes a recent and instructive chapter on moral insanity with an account of a typical case with a late manifestation of "delusions of persecution more or less systematized and hypochondriacal ideas." In the opinion of the distinguished and practical psychiatrist, Hack Tuke, [10] "there can be no doubt that in a number of cases of seeming moral insanity there develop *in course of time* definite delusions, especially of suspicion." According to Folsom, [11] "it is the rule that their doubts, imaginations and suspicions deepen into active insane delusions, their mental impairment advances to noticeable dementia, their moral deterioration goes on to such a degree of depravity that everybody wonders why they had not been seen to be insane long ago, and they are secluded in an asylum or elsewhere."

Further research in this direction can hardly fail to enlarge our knowledge of this intricate disorder and its affiliation with paranoia.

The striking parallelism between this and the once famous case of Christiana Edmunds, who was pronounced to be insane by Maudsley and several other distinguished alienists, is sufficient excuse for referring to it here. The extract is taken from an account of the case [12] quoted by Blandford and cited as typical of moral insanity:

"Christiana Edmunds is an example of a person utterly devoid of moral sense or moral feeling in matters relating to herself, though theoretically she doubtless knew that murder was a wrong thing. That she knew perfectly well what she was doing, in purchasing poison and disseminating it broadcast through the town by means of poisoned chocolate creams and that she knew she was therein doing wrong were equally beyond dispute. Her whole conduct before the crime, and her perfectly rational conversation in jail, clearly proved she could have taught a schoolroom of children in the Ten Commandments, and explain to them clearly that it was a wicked act to break any of them, and a most wicked act to break the Sixth Commandment. But no one could have talked with her in jail without being convinced that in her own case she had no real feeling of the wicked nature of her acts, and that she would have poisoned a whole city-full of people without hesitation, compunction, or remorse. Indeed, it may be doubted whether in her later experiments she was really so much influenced by the inadequate motive, which no doubt instigated them at the beginning, as by a morbid pleasure

[6] Op. Cit., vol. ii pp. 20–26.

[7] Geist: Krankheit (1886).
[8] La Folie Morale, 1878.
[9] Ballet: Pathologie Mentale (1903), p. 652.
[10] Dict. Psychol. Med., p. 814.
[11] Mental Diseases, Boston, 1886, p. 144.
[12] Blandford: Insanity and its Treatment. 3d ed. p. 228.

in poisoning for its own sake, and in the sensation which her secret crimes excited. The terrible story of insanity in her family furnished the real explanation of her state of mind; she had the heritage of the insane temperament."

Dr. Orange, the Superintendent of Broadmoor, under whose care Christiana Edmunds has been ever since her trial, says, "that she has been regarded as of unsound mind by all the medical officers of the asylum who have been here during the last five years. She is at present fairly tranquil, and her conduct is much better than formerly; but I do not regard her as being sane, or fit to be trusted to keep out of mischief. She formerly had periods of depression alternating with periods of subacute mania, but latterly her condition has been more equable."

THE ETIOLOGY AND MODERN METHODS OF TREATMENT OF CHRONIC URETHRITIS.*

BY CHARLES M. WHITNEY, M.D., BOSTON,

Surgeon to the Genito-Urinary Department, Boston Dispensary.

FROM time immemorial the treatment of chronic urethritis, or gleet, has been accompanied with discouragement to the patient and chagrin to the doctor. Over and over again, a patient who has been subjected to dilatation by sounds, to balsams internally, and to the various injections then in vogue, and who is apparently cured, returns again with a profuse purulent discharge which has appeared without any fresh venereal exposure, and demands an explanation from his medical adviser. If this occurs often he becomes dissatisfied with his physician and seeks another, and thus begins his weary pilgrimage from doctor to doctor, and from one quack nostrum to another, until at last the chronic inflammation subsides by itself, or is neglected entirely, and each alcoholic or venereal relapse is dried by capsules of sandal-wood oil, copaiba, or astringent injections.

Phillipe Ricord, whose world-wide reputation and large clinical experience caused him to view rather darkly the future of these patients, used to say to his classes: "Gentlemen, if I am to go to — well, the bad place, I know what my punishment will be: I shall have a lot of fellows with the gleet standing around me, with their lamentations, their importunities, and their prayers to me, to make them well." If such has been, and to some extent is, the future of cases of chronic urethritis, it is necessary for us to study well the conditions which make this possible, and to consider together the means which may be used to avert so unscientific and so unsatisfactory a result.

Chronic urethritis is divided broadly into two classes — the specific or gonorrheal, and simple or non-specific, due to a variety of causes. As from gonorrhea may come not only chronicity of itself, but many other complications which affect the future health of the individual, as well as life itself, it may be interesting to view briefly its history and clinical symptoms.

The early history of gonorrhea is masked in obscurity. Here and there in the writings of the ancients appear doubtful references to an issue or discharge, certain passages in Leviticus suggesting its existence at the time of Moses, certain others its occurrence among the Greeks and Romans; and again, references by Pliny and Galen, by Avicenna and Valescus of Tarentum, show that some local disease was observed. For convenience of description the history of gonorrhea may be divided into three periods: the first extends to 1494, when syphilis made its appearance, the second from this time to 1836, and the third from that date to the present. During the first period up to the fourteenth century the descriptions are vague and uncertain. You will recall that, shortly after Columbus returned from his second voyage to America, a new and hitherto unrecognized disease appeared in the army of Charles the Fifth, who was then besieging Naples, and that it raged with great fury. This, then, was the advent of syphilis which since has spread over the civilized world.

With the attention which this new ailment required, it is not strange that gonorrhea received but scant attention for many years in the current medical writings, but later on, as the nature of syphilis was better understood, there began an increasing discussion in which the medical profession was ranged on diametrically opposite sides. The question which was debated so actively and often so bitterly was whether both of these diseases had a common origin, or were separate and distinct. In short, the medical men up to the time of the eighteenth century were either unalists or dualists, neither side gaining much ground until a misfortune occurred which placed the unalists masters of the situation for the time. One hundred and thirty-six years ago, in May, 1767, on a certain Friday afternoon, the eminent English surgeon, John Hunter, inoculated a portion of gonorrheal pus from a urethra by incision into the glans and prepuce of a patient, — as rumor has it, himself, — and after the usual incubation period, distinct symptoms of constitutional syphilis made their appearance, and victory perched on the banners of those who claimed the two diseases were identical. In the light of our present knowledge we know that Hunter inoculated himself with the pus from a urethral chancre or gonorrheal pus in a syphilitic. But medical progress was by this experiment put back for more than sixty years, until 1836, when Ricord by a careful study of six hundred and thirty-six cases of gonorrhea so conclusively proved the case that no question of identity has recurred up to the present day. But Ricord, brilliant as he was, conversant as his experience made him with this disease, was greatly in error in the light of our present knowledge as to the causation of it. He denied vigorously that it was a specific disease due to a virus, but claimed it was a catarrhal condition brought about by a

* Read before the Middlesex East Section, April, 1903.

variety of causes. From this time up to 1879, little progress was made toward a knowledge of the etiology of this disease. At this time Neisser discovered a diplococcus which was constantly present in gonorrheal pus, and to this he gave the name of the gonococcus. It is to this discovery that the advances which have been made in treatment are due, and to it is due the fact that many acute cases which might otherwise have become chronic have been cured in a few weeks.

Leaving then the history of this disease and approaching the more practical portion of the subject in which you are more interested, I desire to call to your attention a few of the anatomical points concerned, which explain the tendency of the disease to assume a chronic course.

The urethra in the male is about eight inches in length and is divided into three parts, the penile or spongy, occupying about six inches, dilated at its internal end into the bulbous portion, the membranous, about one-half an inch, and the prostatic, one and a quarter inches. The shape varies in each portion, the meatus being a vertical slit, and directly behind this is a dilatation, the fossa navicularis, narrowing again until we approach the bulb, where we have again a dilatation amounting to almost a pocket, and this again followed by a sharp constriction in the membranous portion. The prostatic urethra again enlarges, and we have, therefore, throughout the whole urethra alternate dilatations and contractions. This, then, is one element which physiologically prevents the free drainage or flushing out of gonorrheal pus or other secretions.

As accessories to the urethra we have various glandular structures which often become infected. In the central portion are the glands of Littre, compound racemose glands and follicles, and in the fossa navicularis one large one on the upper surface about an inch from the meatus called the lacuna magna. Opening into the bulbous portion are the two ducts of Cowper's glands. The glands themselves are between the folds of the triangular ligament in the compressor urethræ muscle, and the ducts are from an inch to an inch and a half in length.

In the prostatic portion we have, in the middle line, the veru montanum, and on each side are the prostatic sinuses, and in these are the orifices of the prostatic glands. Nearly at the top of the veru montanum is the utriculus masculinum, and in this are the openings of the ejaculatory ducts. Contained in the folds of the triangular ligament is the compressor urethræ or cut-off muscle, the great anatomical dividing line between the anterior and posterior urethra. Connected also by the ejaculatory ducts are the seminal vesicles.

From this necessarily brief résumé of the essential points in the anatomy of this region we see at once that we have in these various glands avenues through which infection may pass to other accessory organs or in which the gonococci may remain for indefinite intervals, unaffected by antiseptic or astringent injections, an ever present menace to the health and comfort of the individual.

In acute gonorrheal urethritis, the pus containing the specific poison having been deposited at or within the meatus, there is an interval of from three to five days before symptoms begin to appear. At the end of this time a sensation of itching occurs at the meatus, a moderate degree of scalding during urination, soon followed by a purulent discharge. If this discharge be examined early the gonococci will often be found outside the pus cell, but soon become intra-cellular as the discharge increases. The gonococci penetrate very rapidly through the epithelial layers of the urethra, entering even the submucous tissues. By a process of phagocytosis the leucocytes seize upon the gonococci and a free discharge of pus results, removing many from the passage. At the same time a desquamation of the superficial epithelial cells occurs, and these, with the extra-cellular diplococci, are expelled with the flow of pus. In this manner the inflammation rapidly spreads along the anterior urethra, involving on its way the glands and follicles until it reaches the compressor urethræ muscle, and here it meets its first anatomical barrier, and if, as is sometimes the case, it does not progress beyond it, it remains an anterior urethritis. In the majority of cases, however, it does so progress and involves successively the membranous and prostatic urethra and produces the various complications so well known to you, — prostatitis, cystitis, seminal vesiculitis and epididymitis. As the disease continues the discharge increases, rapidly at first, and then slowly subsides, becoming less purulent and more mucous until it is a purely mucous secretion similar to a catarrhal discharge in any other region, and it is this form which most commonly persists and forms the chronic urethritis with which this paper deals especially. Examined microscopically at this time the discharge is found to consist of mucus, more or less fibrin, leucocytes, and perhaps an occasional intra-cellular organism.

The exact time at which a subacute urethritis becomes a chronic one is not easy to define in precise terms, for much depends upon the treatment adopted at the onset and upon the question of a primary infection. It is perfectly obvious that a urethra narrowed by strictures or abnormal from repeated attacks of gonorrhea does not heal as rapidly as one which was normal at the onset of the disease.

Assuming, however, that the average duration of properly treated cases of gonorrhea is about six weeks, exclusive of the modern methods of treatment by irrigations of permanganate of potash or the silver salts which are still, many of them, unavailable in the ordinary case as treated in private practice, we may say that a chronic case is one in which there is still a persistence of a mucous or muco-purulent discharge at the expiration of ten to twelve weeks.

So far we have discussed only specific urethritis, but we also have the non-specific forms which are

more common than is often stated. These are produced by a variety of causes, chief among them being uric acid excess, febrile attacks, trauma, syphilitis, tuberculosis and alcoholic excesses, with also a probable form of bacterial infection by other organisms than the gonococci. In this form the secretion contains no gonococci, the symptoms are less acute, the complications are fewer and the discharge is less purulent, often being simply mucous or watery. The reaction to treatment is not at all satisfactory, and the tendency is to assume a chronic course which persists until the cause, often constitutional, is removed.

Assuming, then, that a patient presents himself for treatment with a history of urethral discharge from one to two years' duration, what should we do in the light of modern science to ascertain the source of this discharge, and having ascertained this important fact, what treatment should we adopt to cure it?

To insure uniformity and thoroughness in the examination and as a result of several years' clinical work in this special line I have compiled a record blank which incorporates most of the

NAME ..... Age ..... Married Single Occupation .....

DATE ..... 190 ADDRESS .....

RECORD FOR CHRONIC URETHRAL DISCHARGES.

PREVIOUS HISTORY.

GONORRHŒA. Attacks. Duration. Complications. Previous treatment.

OTHER VENEREAL DISEASES. Venereal Excesses

PRESENT HISTORY.

DURATION.

DISCHARGE. Amount ..... Character ..... Location .....
When present ..... Sticking of Meatus .....

MICTURITION. Frequency. Day. Night. Pain. Before. During. After. Blood. Before. During. After. Size of Stream ..... Freedom

DEFECATION. Pain ..... Urethral Discharge ..... Emissions ..... Sexual Power

PENIS. Prepuce, long ..... tight

URETHRA. Discharge: Purulent Mucopurulent Mucoid Watery. Microscopical Exam: .....
Meatus: Size ..... Color .....

Strictures:	Location.	Calibre.	Sensitiveness.	Bleeding.	Character.

Tender Spots: .....
Endoscopical Exam: .....

TESTES AND EPIDIDYMES.

CORDS AND GROINS.

PROSTATE. Size and Shape ..... Consistency ..... Tenderness .....

SEMINAL VESICLES.

FIRST URINE. Clear or Turbid: Shreds: Light or heavy. Large or small. Long or short. Duct like. Comma like. Thread like. Mucopus Iron. CHEMICAL EXAMINATION: Color, Specific gravity, Reaction, Albumen, Sugar, Blood, Sediment
Acetic acid:

SECOND URINE. Clear or Turbid: Shreds: Light or heavy. Large or small. Long or short. Duct like. Comma like. Thread like. Mucopus Iron.
Acetic acid:

SPECIAL URETHRAL EXAMINATION.
1. Anterior Irrigation
2. First Urine
3. Second Urine
4. Urine, or solution, after massage
Microscopical Examination of expressed material

Diagnosis, ...
Treatment:

essential points. Having heard the history, the patient should remove sufficient clothing to allow free access to the genitals, and these should be carefully inspected. The general size of the penis, with reference to the probable urethral calibre, the length or absence of the prepuce, any abnormality of the testes, epididymes, cords, or groins should be noted. If discharge is present, the meatus should be wiped off with a moist piece of gauze and with a sterile platinum wire a small portion of this secretion should be transferred to a slide and examined microscopically. The presence or absence of gonorrheal organisms is of the greatest consequence in determining our treatment, as well as the relative proportion of leucocytes, mucus, fibrin or epithelium.

While this examination gives us much valuable information concerning the character of the discharge it does not aid us materially in determining its source, and it is for this purpose that our next steps are taken. It was formerly a routine procedure to ask the patient to urinate into two glasses and by comparison of these to form some idea as to whether the anterior or posterior urethra was chiefly affected. Useful as this is in acute cases where there is a profuse discharge, it is utterly valueless in chronic cases with scant discharge, for there is not enough in the posterior urethra to flow back into the bladder, but it remains in the urethra and is washed out by the first stream of urine. Therefore, the first glass contains all the material from the whole urethra. A more accurate method is to thoroughly wash out the anterior urethra with 4% boric acid solution. This fluid containing the discharge anterior to the compressor urethræ muscle, is saved for comparison.

The patient should now urinate in two glasses. If both portions are clear we may conclude that the source of the discharge is in the anterior urethra. If the first contains shreds and the second none it points to the posterior urethra, while if both are cloudy or contain many shreds, it indicates that there is an inflammation of the bladder itself or considerable discharge from the prostatic urethra flowing back into it. If the bladder is empty it should be filled with boric acid solution and the prostate and seminal vesicles massaged; the urine or solution will then contain the material from these sources. This four-glass test gives us, then, a fairly accurate idea of the source of the greater part of the chronic discharge.

Having made this routine examination and having washed out from the urethra the various pathological elements, of what do we find them to consist? Where the discharge is fairly profuse we have a turbidity of the urine which does not clear upon adding acetic acid, which differentiates it from phosphaturia, a not uncommon condition in chronic urethritis. Where the discharge is scanty it appears in our glasses in the form of floating particles varying in size and consistency, and to these has been given the name "clap shreds." From the shape of these, little is to be learned, although it has been the custom to assume that those of a hook or comma shape had their origin in the prostatic urethra.

Microscopically these shreds are found to con-

sist of mucus, fibrin, epithelium, pus, or of combinations of all these. Without the microscope we receive some aid in determining these facts by the behavior of the shreds in the freshly passed urine, the heaviest which sink quickly are chiefly composed of pus, and the lightest, which float for some time, are mucus. The epithelial shreds occupy an intermediate position in this respect. Beside the symptom of discharge, which is constantly apparent to the patient, we have other and graver symptoms in these chronic urethral catarrhs to which only a passing allusion can be made. When the inflammation invades the prostatic portion we have many and serious disturbances of the sexual functions. These are due to extension to the prostate and result in a lessened sexual desire, deficient erection, premature ejaculation and often nocturnal emissions. With these we are apt to have various neurasthenic symptoms and radiating pains in various directions. Relapses occur again and again, especially in this region, giving rise to symptoms of cystitis of the neck of the bladder, frequent and painful micturition, with often the appearance of considerable blood at the end of urination. These attacks subside under sandal-wood oil and diuretics only to recur again and again until vigorous and continuous local treatment has been instituted for their relief.

Of what then does our treatment of these stubborn urethral cases consist?

The theory of treating a chronic urethritis is beautifully simple, and consists in destroying and removing the gonococci and curing the resulting catarrhal inflammation. But when we remember the organisms are often situated in the submucous tissues and in the remote recesses of branching or racemose glands, and that the resulting inflammation is of a plastic nature which interferes with the normal resiliency and circulation of the urethra, we see why it is that gleet, not properly and thoroughly treated, pursues so stubborn and intractable a course. The chief advances which have been made by modern medicine in this direction have been, first, in giving us practical antiseptics which destroy the organisms without injuring the tissues and, second, in providing us with instruments by which we may remove the products of plastic exudation, and, third, in showing the importance of direct local treatment applied to the prostate and seminal vesicles.

To destroy the gonococci we have the choice of several silver salts, the latest of which is argyrol which contains 30% of silver vitteline. protargol, about 8-10% and permanganate of potassium. If the discharge contains gonococci, before proceeding further we should attempt to destroy them. For this purpose we may use 10% argyrol solution to be held in the urethra for five minutes each day, applied by the physician, and a 4% solution to be used by the patient three times a day to be held five minutes each sitting. We may use practically the same strength of protargol. At the present time argyrol seems more satisfactory, as it is practically non-irritating in any strength and contains the largest percentage of the silver salt. We may use irrigation of permanganate of potash by the gravity method brought into popularity by Janet and Valentine, by which the whole urethral tract is flushed out without the use of a catheter, the force of gravity obtained by elevating the solution about six to nine feet being used to overcome the cut-off muscle. By a little practice this is quite easy to do and greatly aids us in treatment. The patient should lie on a table and the anterior urethra should first be thoroughly irrigated. The tip is then pressed firmly into the meatus and the solution gradually allowed to overcome the resistance of the compressor urethræ and to fill the bladder. In some cases this is quite difficult to do at first, but by having the patient attempt to urinate or by instructing him to breath deeply, the fluid soon enters the bladder. It is superior to irrigation with a catheter because in acute cases no foreign body is introduced into the urethra, and in both acute or chronic cases full dilatation is obtained which effectually washes out all inflammatory products.

IRRIGATOR.

Messrs. Leach & Green have constructed for me an irrigating stand which does not require fastening to the wall, but may be placed where-

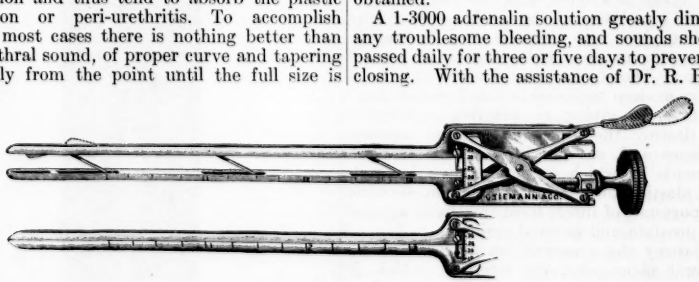
ever it is needed. A glass receptacle containing 2,000 cc. is raised by a pulley to the height required, the maximum being seven and a half feet, which gives sufficient force for almost any case. In hospital and private work I have found this very convenient and useful. Where this method cannot be carried out for various reasons, we obtain good results by ordering one grain tablets of the permanganate of potash to be dissolved in a half tumblerful of hot water, making a solution of about 1-2000 to be used for home treatment. These treatments at home only relieve the parts which the injection reaches and rarely penetrate to the deep urethra. Having by these various means lessened the discharge, or at least made it free from gonorrheal organisms, we are now prepared to examine the urethra for localized areas of inflammation. For this purpose the patient first urinates, and then with the largest bougie-a-boule which the meatus will admit, the urethra should be examined and careful record made of any tender spots for later endoscopic treatment. Should a stricture be present which will not admit a full-sized bougie the next smaller should be selected until we find one which will pass. If 10 Fr. will not pass it is useless to try further, but a soft bougie should be used. Note should be made of any bleeding following these manipulations and of the location, calibre, sensitiveness and character of all strictures.

Whether or not any stricture is found and whatever the cause of the chronic discharge, ruling out of course the sources too far away from the urethra to be affected by it, the cardinal point in treatment is the thorough dilatation of the urethra from the fossa navicularis to the prostate. The object of this is two-fold, to remove from the follicles their contents, and by pressure upon the urethral walls to stimulate circulation and thus tend to absorb the plastic exudation or peri-urethritis. To accomplish this in most cases there is nothing better than the urethral sound, of proper curve and tapering gradually from the point until the full size is reached. As the average urethra is about 30 Fr. and the meatus 24 Fr. it is often impossible to pass a sound of sufficient size to dilate the deeper portion without cutting the meatus. Where this is undesirable we may use the Kollmann dilator which is invaluable in cases of gleet where no stricture is present. This consists of four blades which are opened by turning a screw in the handle which registers upon a dial the size reached. The part of the instrument which remains in the meatus is about 22 Fr., and is not affected by the dilatation of the blades which open lower down. The instrument is covered by rubber which protects the urethra. It produces far greater dilatation than can be obtained in any other way as it is quite possible to dilate the prostatic portion to 35 or 40 Fr. without marked discomfort to the patient and with great improvement in the local condition.

In the treatment of stricture it is not the equal of the older method by the sound, for between the blades are spaces where the pressure is not as firm, and we do not get, therefore, a uniform dilatation. With the use of any instrument, however, we not infrequently find at the outset a tight meatus, and before further treatment can be instituted, this must be cut. Before cutting a meatus indiscriminately its physiological use should be borne in mind. Normally of smaller size than the urethra it regulates the size of the urinary stream. If too large an opening is made this function is destroyed and great discomfort to the patient results, for the urine cannot be expelled with sufficient force to direct it away from the clothing. Beside this an atrophy of the normal urethral glands takes place in the navicular fossa. We should therefore use care in dividing the meatus to maintain as far as possible its relative size.

A simple method of doing meatomy is to first thoroughly cocainize with 10% solution using a small cotton swab which is placed in the meatus and allowed to remain while the instruments are being prepared. A small, blunt-pointed tenotome is best for this purpose, and the incision should always be made on the floor of the urethra. After incising to the size we think right, it should be measured by the bougie-a-boule, and if it is not large enough the knife should be reinserted and the cut enlarged until the proper calibre is obtained.

A 1-3000 adrenalin solution greatly diminishes any troublesome bleeding, and sounds should be passed daily for three or five days to prevent rapid closing. With the assistance of Dr. R. B. Rees, I have recently devised a new meatome for this purpose and also for cutting strictures in the penile urethra.



MEATOME.

The accompanying cut illustrating the instrument is three-fourths actual size, and shows all the details so clearly that a lengthy description of the different parts seems unnecessary; the motion of the blades is perfectly parallel, and dilatation is easily and accurately accomplished by means of the thumb-screw at the end of the

handle propelling a rod dovetailed in the lower branch; the brackets which are jointed to this moving rod cause the blades to separate, the extent of dilatation is indicated in the metric gauge on the scale appearing on both sides of the instrument, the scale is fastened to the lower branch, the indicator to the upper one. The concealed knife may be withdrawn after dilatation to any desired distance by means of the small handle extending beyond the instrument. The shaft of the instrument is graduated in inches commencing at the point where the knife appears from its concealed position. Cross-bars adjusted to both sides of the handle stiffen the instrument so that it is rigid from end to end at any degree of dilatation. As a stricture is cut upon the upper surface of the urethra, and the meatus upon the floor, the scales are reversed for ease in reading in the two positions.

The instrument has been beautifully made by Tiemann & Co., to whom I am indebted for valuable suggestions. In using the urethratome it should be introduced into the urethra, the desired degree of dilatation obtained and the stricture or meatus quickly divided by withdrawing the small buried knife. By this means a uniform result is quickly obtained and a single clean incision, which is a great advantage over the several " nicking " cuts unavoidable by any other accurate method.

After dividing the meatus when necessary we should dilate the urethra once or twice a week and irrigate the anterior and posterior urethra with 1-3000 permanganate of potassium or 1-4000 silver nitrate solution in order to flush out material expressed from the follicles, using the gravity method. One can use a large hand syringe with a special rubber tip and a nipple shield to prevent the fluid escaping into the face of the operator. An addition to our appliances for this purpose is the irrigator tip devised by Dr. R. B. Rees, which consists of a glass Pg. 19 shield which perfectly protects the operator while irrigating these gonorrheal patients.

Having assured ourself of the thorough dilatation of the urethra we should next examine the prostate and vesicles and massage them, saving the secretion for microscopical examination, and after the massage irrigating the bladder and urethra as after dilatation. To properly apply this massage the patient should lean forward resting the hands on a stool, and with the index finger the prostate and vesicles should be gently stroked toward the median line. These sittings should last from three to five minutes, and should be repeated once or twice weekly, and always with the bladder filled with urine or boracic solution. After massage the fluid containing the expressed material has an opalescent appearance. When the prostate is chiefly involved one of the most valuable aids to treatment which we have is the deep instillation of nitrate of silver solutions of varying strengths, beginning with five grains to the ounce and increasing to ten or fifteen grains. With an Ultzmann syringe lubricated with glycerine a few drops are placed just behind the compressor muscle and this applies itself to the whole prostatic urethra. The patient experiences an intense desire to urinate which continues for an hour or two.

Occasionally a few drops of blood follow but this is of no especial significance.

To treat localized erosions we may avail ourselves of the urethroscope, and the best instrument for the purpose is an electrical one made by the Rochester Electro-Surgical Company. The urethral mucous membrane is inspected while the tube is being withdrawn, and any localized area of inflammation touched with a strong solution of nitrate of silver. This method is of most value in the cases which have resisted other forms of treatment and in which the only symptom present may be a slight sticking together of the lips of the meatus. Where there is an atonic condition of the urethral lining the psychrophor of Winternitz, may be used. This is a hollow sound into which a current of alternating very hot and cold water may be introduced, which is often followed by benefit. The patient may use with advantage during these treatments various solutions by a syringe, some of the best being permanganate of zinc in the strength of 1½ gr. to the ounce, sulpho carbolate of zinc, 2 to 5 gr. to the ounce, and permanganate of potash as already mentioned, as well as many other astringents in the formulæ familiar to us all. When the discharge is profuse internal medication should be used and the oil of sandal wood is most satisfactory in its action. As this oil varies very widely in quality, only the purest should be prescribed. Intervals in the treatment should be observed in order to avoid over treatment and keeping up a mechanical irritation which tends to prolong a catarrhal condition.

Confronting us always in these cases is the vital question, When is a patient well, and no longer capable of infecting any one else? Briefly, when there is no longer a discharge, when the shreds contain neither pus, gonococci or a large amount of epithelium, and when, furthermore, after producing a discharge by nitrate of silver or corrosive solution no organisms are present. Also, when after alcoholic or sexual excesses no discharge appears we may be reasonably sure that the patient is well.

In conclusion I desire to say again that while we have in chronic gonorrheal urethritis a most stubborn, intractable and sometimes incurable ailment, still, these methods of treatment which I have described to you seem to me to be progressing in the right direction, and to give hopeful promise of future benefit.

When in gonorrhea we have a disease which is responsible for 75% of the blindness of the world and for one eighth of all the pelvic ailments of women, and when from consequences near and remote a person may be a permanent cripple in one or many joints, may be impotent, or may finally die from kidney disease following stricture, it seems reasonable that such a disease in its acute or chronic manifestations is worthy of the most careful study of every thoughtful physician.

Clinical Department.

MASSACHUSETTS GENERAL HOSPITAL.

CLINICAL MEETING OF THE STAFF, TREADWELL LIBRARY, FRIDAY EVENING, APRIL 15, 1904.

DR. F. B. HARRINGTON in the chair.

ULCERATION OF PRIMARY BRONCHUS; PERFORATION INTO PULMONARY ARTERY.

BY W. W. GANNETT, M.D.

The case of which I am about to speak is one of ulceration of the primary bronchus with perforation into the pulmonary artery. This man was a sailor, thirty-seven years of age, and single. Had been sailor in early life and after that a painter. There was a history of gonorrhea, but no syphilis. For three years previous to entering the hospital he had had a continuous cough, but no expectoration. Two days before coming into the hospital he had expectorated a large amount of blood, a quart or more. From that time the expectoration was very much like that of a case of tuberculosis. On the second day of his entrance, about eight o'clock A.M., he suddenly coughed up about a quart of blood, and immediately became unconscious. Saline solution was immediately administered. From eight o'clock in the morning until the next evening he coughed no blood. Twenty-four hours after this a large amount of blood gushed out, and he fell dead.

The interesting point in this case was the extensive hemorrhage at first, and the long interval between that and the next one. During life the origin of the hemorrhage was very doubtful. In some respects it resembled an ordinary tuberculosis, but it was very unique. It was not like death from aneurism, because in this the hemorrhage is usually continuous until the death of the individual.

Post-mortem: There is very marked thinning of the wall of one of the primary bronchi, while at one point there can be seen a very distinct opening in the bronchus, connecting with the pulmonary artery. We thought at the time this might be the results of tuberculosis or of syphilis. There was evidence of syphilis in the testes and slight cicatrix on the tongue which suggested a syphilitic lesion.

We can easily see how the hemorrhage occurred. The bronchial wall being exceedingly thin, the efforts at coughing caused a breaking of the thin wall of ulceration. He then went for three days without hemorrhage, bleeding very little during the first twenty-four hours of stay in the hospital. The interval gave an opportunity for a thrombus to form. It seems to me that when the second hemorrhage occurred, the thrombus which had formed was dislodged, and the blood came out with a gush.

A CASE OF INTUSSUSCEPTION. INTERSTITIAL COLITIS, SIMULATING CANCER OF THE RECTUM.

BY J. W. ELLIOTT, M.D.

CASE I. This patient does not speak a word of English, so the history is very unreliable. We could not make a diagnosis at first. He was perfectly well up to a few weeks ago, and when he entered the hospital his bowels were moving every day. He began then to have ten or twelve movements a day. There was pain, but not radiating. At times the pain stopped. He vomited constantly during this period, retained very little food, but lost very little weight. He was feeling wretched, and looked as though he would not stand an operation. Later the diarrhea ceased and there was considerable distension. We were able to give him a good movement at one time, then the next time could not. The most noticeable thing about him was a hard tumor just above the umbilicus, with coils of contracting intestine visible all about. At first everybody thought it was obstruction due to cancer. At the time of the operation, just before I made the incision, this lump was very much larger and down to one side. At the operation, this hard lump proved to be the whole length of the descending colon, and very much swollen, as large as my wrist. I did not feel sure of the diagnosis until I opened the colon, and out popped the invagination. Of course, the intestine was gangrenous and swollen, and there was nothing to do but to amputate it. My plan was to make an artificial anus just above the transverse colon, but when I pulled up the transverse colon, I found it would produce so much tension that it seemed unsafe, so I finally pulled the whole thing out. The opening was enormous. I put a Mixter tube in the transverse colon and stitched the gaping end into the wound. He was in poor condition, and his abdominal wound was closed with through and through stitches, which was all right, but the Mixter tube would not stay in more than a few days. There was soon a fecal fistula opening into the wound with the intestines bulging out. By stitching that together and to the colon above, we finally got a good result. The mortality is something like 90% in these cases, so I think we were very fortunate. The Mixter tube was very disappointing to me. It is supposed to carry the feces away, but it does not do it.

CASE II. This case had constipation and dyspepsia for the last twelve years, but last few months had a subacute difficulty, constipation and diarrhea alternating. She came in for a tumor of the rectum. There was a hard mass there that felt like a cancer. Pus and blood were coming constantly, and I had no doubt it was cancer. I intended to resect the rectum and part of the sigmoid flexure, but when I opened the abdomen I found the whole gut, from the anus up to the splenic flexure, was one solid tube of large calibre, and so fixed that I could hardly move it. Resecting was out of the question, so I simply made an artificial anus on the other side. The mass had such a strange appearance when we came to look at it that I doubted whether it was cancer after all. We had it scraped and examined, and the report came back negative — simple inflammatory tissue. The whole descending colon down to the rectum was chronically inflamed, — interstitial colitis.

I submit that this is the proper treatment for such an inflamed condition of the lower bowel. Sidetrack the feces, and wash through. The patient is now very much better. There has been no sloughing, and the pain is all gone. Of course, everybody does this operation for tuberculosis of the rectum, but I do not know of its being done for a chronic inflammatory condition of the bowel.

A CASE OF CHRONIC LEUKEMIA. A CASE OF SUBACUTE ARTICULAR RHEUMATISM. A CASE OF METHEMOGLOBINEMIA. A CASE OF EMPHYSEMA. CHRONIC PLETHORA. AN UNUSUAL CASE OF SCLERODERMA.

BY E. G. CUTLER, M.D.

CASE I. The first case I wish to show is a case of chronic leukemia. The patient felt well until March

29, then noticed lumps coming in the neck. Lost in weight, color and strength. Hemoglobin 50%, whites 711,900, reds 3,020,000. Differential count of 500 white blood corpuscles showed 500 lymphocytes. April 1 whites numbered 712,000. On April 9 reds were 2,400,000, whites 592,600. The glands in the neck can still be felt, but are by no means as large as when first came in. Glands enlarged under the arms. The abdomen was considerably distended and glands were felt, which seem to be behind the intestines. The spleen is somewhat enlarged. This all answers the description which one sees of lymphatic leukemia. Dr. Cabot suggested that we try the x-rays on him.

CASE II. A case of subacute articular rheumatism with subcutaneous nodules. They are composed of fibrous tissue, and usually grow from the size of small shot up to the size of a pea. They are said to occur in other diseases besides rheumatism. The books all say these come about the joints, but I have seen four cases where they came on the forehead. Microscopically they are seen to be composed of round and spindle-shaped cells.

CASE III. She has had severe headaches coming on in paroxysms for three or four years and has been given headache medicines. When she came in here her lips were very blue. We tested the blood and found that instead of having either blue or red blood, that she had brown blood. Spectroscopic examination shows bands characteristic of methemoglobin.

CASE IV. A case of emphysema, with tremendous cyanosis. He has a red blood count of 8,432,000. He had severe headaches, which medicine did not seem to help at all. We bled him about a pint, and he has been better ever since.

CASE V. I have two other cases of chronic plethora in which there is polycythemia as well. One is eighteen years old, and is here for the first time. You will notice the red face. There has been some retinal hemorrhage. Reds 8,120,000. Hemoglobin 80%. Whites 10,000. She was bled on March 10, when she showed an increase of reds. After bleeding there was a decrease of reds to 5,000,000. On the 19th they were 3,000,000, rising later to 4,040,000. She is more comfortable than she had been. Very soon after this we bled again, and the count went down to 3,608,000. She is not so dizzy and has no headache now. She looks a great deal better, although the color is still very high. Blood pressure is 130. (Riva-Rocci, — narrow cuff.)

CASE VI. The next patient has been here twice before for plethora. She is so full of blood that there is pigmentation in the hands. Those parts of the body which are exposed soon became pigmented. At first the reds were 8,844,600. Hemoglobin 20%. About a month later the count was over 9,000,000, then went down to 8,426,000, and up again to over 9,000,000. We then bled her and it came down to 8,872,000, and a week afterwards lower still. But the headaches returned and the reds again went up to 9,000,000, when we bled her once more and they came down. She thinks there is no question but that the bleeding was beneficial to her.

CASE VII. A progressive generalized scleroderma marked by hypertrophy and atrophy of the cutaneous pigment and atrophic condition of the skin. There is immobility of the joints, etc. In Dr. White's opinion, it is a condition of the cutaneous tissues quite different from anything of the ordinary type. The disease has been coming on for a considerable time. Three and a half years ago she became blue, and gradually the skin became dark.

FOUR CASES OF FINNEY'S OPERATION ON THE STOMACH.

BY JAMES G. MUMFORD, M.D.

I have to report four cases of gastro-duodenostomy, performed by Dr. Finney's method, which, members are aware, is designed to give a very large, free opening for stomach drainage into the duodenum in cases of pyloric stenosis, — cases which are not malignant and in which active ulcerations are not present. These four cases are all dissimilar and, as the results are good, they give us further light on the possibilities of this operation which, I am coming to believe, with Dr. Finney, is capable of extensive application, is extremely useful in suitable conditions, is attended with a low mortality, and is not especially difficult of performance.

CASE I. The first case, Mrs. McG., is reported three and a half months after operation. I referred to the patient briefly at our February meeting. She is a married woman, forty-six years old, who was sent to me at the hospital in December last by Dr. Frederic Winslow.

She has a history of many years of dyspepsia. About one year ago she began to have pain in the epigastrium, coming on about fifteen minutes after eating. The pain lasted two or three hours, unless relieved by vomiting. For ten weeks she had vomiting almost daily, and for three weeks had been nourished by enemata. She had lost about twenty pounds and was greatly emaciated. The symptoms were unrelieved by lavage or other palliative treatment. Analysis of the gastric contents showed much undigested food and free HCl.; the stomach was but slightly dilated.

I performed Finney's operation on January 1 last. There were numerous adhesions found about the pylorus, which was fixed high and sharply kinked. The patient had an uneventful convalescence; solid food was taken on the sixth day and she was about on foot at the end of three weeks. She is now free from pain, has an excellent appetite and, as she herself tells you, feels perfectly well.

CASE II. Shown two months after operation.

Dora S. Patient of Dr. J. M. Jackson, age forty-five, nine children. Has had dyspepsia for many years. Her chief symptoms were pain in the epigastrium after all food, with increasing vomiting since last August. She was temporarily relieved by treatment, but without lavage uncontrollable vomiting persisted. She had pain after eating. At the time of her entering the hospital, Feb. 20, she was vomiting practically all food, and was alarmingly weak and emaciated.

Gastric contents: Undigested food, absence of HCl.

Operation Feb. 23. The stomach was found slightly dilated, with adhesions about the pylorus, the lumen of which was much thickened, admitting the tip of the little finger only. There were three scars on the anterior aspect of the stomach. The patient rallied well with little vomiting, and on the sixth day was eating solid food with care.

The convalescence has been rather slow, but the symptoms have steadily improved, and the nurses now report that the patient has an enormous appetite and an unimpaired digestion.

CASE III. Shown three weeks after operation.

She is of a type quite different from the first two. A young girl in fair condition, but with an enormously dilated stomach.

Emma L. H. Eighteen years old; was a patient of Dr. J. M. Jackson, who had observed her for several

years. She is a vigorous, well-grown girl. About five years ago she began to have nausea and distress after food. This was relieved occasionally by vomiting. She never noticed old food in the vomitus. She had much careful treatment, which relieved her for the time, but her symptoms would recur. The stomach gradually became dilated, reaching nearly to the pubes; though after several weeks of treatment it descended only two inches below the umbilicus. There was no ptosis. Operation was advised on the principle of an operation for chronic appendicitis, — to avoid future trouble.

On March 25 the abdomen was opened; a thin-walled, dilated stomach was discovered, with a high pylorus, adherent and slightly kinked. An extensive Finney operation was done. The convalescence has been absolutely uninterrupted. Within a week the patient ate solid food and now indulges a vigorous appetite, without subsequent discomfort. By percussion, we now show the lower margin of the stomach to be two inches above the umbilicus.

CASE IV. Shown ten days after operation.

Mrs. S. Age, forty-four; a patient of Dr. C. E. Williams, of Roxbury, was much the most difficult and interesting of these four cases. She had had gastric symptoms for nearly ten years, — symptoms characterized by distress after taking food. For about one year she had severe cramp-like pains in the epigastrium immediately after all food; was constantly hungry, but her pain was increased by food; she had much nausea but no vomiting. Had lost fifteen pounds, was always thirsty, but water distressed her, and she was in a miserable, emaciated condition.

The patient was brought to me six weeks ago. Physical examination showed the pelvic organs to be not abnormal, the abdomen boat-shaped, retracted and tender in the epigastrium. Somewhat distended below the navel, with a movable right kidney, easily palpable. By percussion it was estimated that the stomach was prolapsed, the lesser curvature being about two inches above the navel. It contained forty ounces; at first there was absence of HCl., but under treatment acid was found later. Careful dieting, lavage, HCl. and salts gave relief for a short time, but the symptoms returned and the patient grew despondent.

She was sent to the hospital, where I opened the abdomen on April 5. The stomach was found prolapsed, but an interesting point was an hour-glass constriction in that organ about four inches from the pylorus. The cardia was thin, pale, distended. The pyloric extremity was thick and injected. There was very little pyloric obstruction. There was a single stone in a flabby, empty gall bladder, which was non-adherent and showed no evidence of inflammation. The hour-glass stomach was treated by an extension of the Finney principle, — so far as I know, the first time this principle has been applied to hour-glass stomach. By this method very free drainage was established.

The stone was removed from the gall bladder and cholecystostomy established through a stab wound on the right. The patient has done well, and is now eating solid food without discomfort.

There are a few points in connection with Finney's operation which are interesting, and after my limited experience with four cases, I am encouraged to believe that this procedure is to prove a very valuable addition to our resources.

The drainage established is very free; the route of drainage does not depart from the normal course.

The convalescence is very comfortable; far less stormy than after gastro-enterostomy; very little vomiting, nausea or pain.

In the last case I hope we have demonstrated that the symptoms of ptosis of the stomach may sometimes be relieved or cured by this operation. Certainly we have shown that in hour-glass stomach it is applicable, if not ideal.[1]

REMARKS ON THE RESUME OF DR. F. B. HARRINGTON'S SERVICE FOR THE YEAR 1902.

BY E. A. CODMAN, M.D.

This is the third report[2] of this kind which has been shown at these meetings, representing a total number of 667 cases, the results of which have been traced. I want to say a few words about the advantages which might be obtained by having similar reports made of the services of each surgeon. In the first place, it is a very valuable training for the individual who examines the cases and makes out the report. I think that I have gained as much valuable surgical experience in making out these reports of Dr. Harrington's service as I have gained in the actual operating on a portion of these cases, so that I feel more than repaid for the little work which such a system requires. No matter how favorable impressions of certain operations may be, when a careful examination of the patient is made a year later, many disagreeable symptoms may often be found. A knowledge of these symptoms does a great deal to help in future operations in similar cases.

We all must acknowledge that good surgical judgment is obtained rather by personal experience than by the examination of statistics; but in looking up the after results of one's cases, we are not dealing with statistics, but merely adding to our personal experience in a way in which we would not do unless we made a special point of it.

The advantages of such a review of the cases to Dr. Harrington is also apparent. I have written to these cases to return during the first two weeks of Dr. Harrington's service of the following year, so that if any case presents itself which shows an interesting or instructive result, I could call Dr. Harrington's attention to it, and in a very few minutes in the morning he has been able to run over the cases which present themselves, thus his personal experience is also enlarged in a most instructive way.

As these reports accumulate year after year, the figures add up surprisingly, so that in case Dr. Harrington wishes to look up any one of the classes of cases in these tables, he may turn to these leaflets and get a good bird's-eye view of the results. Perhaps he may wish to compare his results with the report of some operator whose paper he is reading. For instance, in the past three years in Dr. Harrington's service, there have been 42 hernias, 14 fibroids and 127 cases of appendicitis. By turning to the remarks on

[1] Since reporting the above four cases I have had one other quite similar in symptoms and physical condition to Case 2. It is at this writing four days since the operation; the patient is eating soft food freely and in spite of a cardiac lesion, promises to make a speedy convalescence.

[2] Report published in JOURNAL, June 9, 1904.

the cases, Dr. Harrington could find what the result of about one half of these cases has been a year after the operation. It enables him, too, to reflect on what cases are in general unsatisfactory; for instance, in the gynecological cases in which the cases have been distinctly less favorable than any other class. In order to improve results, it is first necessary to know whether they are bad or not, and the account of the gynecological cases given at discharge in the annual report would be very much more favorable than the account by the patient a year later. Then as to the value of these reports in general, to those of you who take the trouble to read them. I think from these reports the general practitioner can obtain a fairer idea of the results of the hospital cases than he can from the papers which are written by individual surgeons in classes of cases in which they are more interested, and naturally have taken more pains than on the general run of cases.

If I should put the statements in this report as questions, I doubt if many of this audience would be able to give very satisfactory answers of what the results were. For instance, of the results of the thirty-one interval cases of appendicitis which have been reported in these three years, How many had received no improvement from the operation? The answer is, four. Of the eighteen cases of cancer of the breast, How many show recurrence at the end of a year? The answer is five, although two were not positively cases of recurrence.

The report is also valuable as showing the variety and general character of the class of cases which the surgeon is called upon to treat, and as representing one ninth of the hospital work. When we consider that we have in these three reports 667 after results, and that this number might have been multiplied by 9 if the assistant surgeon in each service had made a similar report, the aggregate number of 6,003 might be of *some* value statistically, although not of great value, as the classification of the results would have to depend on the judgment of the individual who looked them up and marked them as, "perfect," "good," and "no improvement," etc.

If some arrangement could be made by which the house officers should see these late results, it would be very instructive for them, for I feel sure the house officer in graduating from this institution gets a very much more favorable idea of the results of surgical operations than he is really justified in having.

VULVO-VAGINITIS IN CHILDREN. A METHOD FOR OBTAINING SPUTA FOR BACTERIOLOGICAL EXAMINATION IN INFANTS AND YOUNG CHILDREN. MOUTH TEMPERATURE AND RECTAL TEMPERATURE.

BY L. W. TOWNSEND, M.D.

Unfortunately, vulvo-vaginitis is a very common disease in all children's clinics, and of serious import, owing to the presence in nearly all the cases of the gonococcus. The treatment is often difficult and generally unsatisfactory. I have used lately, however, in the children's clinic a 4% solution of argyrol injected slowly through a small catheter into the vagina, to the extent of one ounce, and held there for ten minutes, the child lying on her back. In several cases the improvement was very prompt, and there was little or no discomfort to the child, as is the case with larger douches of boric acid or corrosive sublimate.

A child under five or six years of age coughs up sputa into its mouth, but swallows instead of spitting it out. Hence the diagnosis of many cases is often difficult. Especially is this the case with cases of delayed resolution in bronchopneumonia, many of these having an evening rise of temperature, so that the tuberculin test cannot be used.

Holt has recommended the passage of a stomach tube and the examination of the mucus that adheres to it; others have used emetics and examined the vomited mucus.

A method recently described by Findlay, and used for some time in the French hospitals, I have found very simple and very satisfactory. It consists in sweeping the finger covered with gauze over the glottis and epiglottis. This causes reflex coughing, and the expelled mucus is caught in the meshes of the gauze.

A small point, but it is generally taught to students and nurses, that the temperature is 1° higher in the rectum than in the mouth. With tested thermometers, taking the temperature in these two places simultaneously in twelve cases I have obtained the following results: In four cases the rectum was higher by 0.2, 0.2, 0.3 and 0.6°; in five cases the temperature was exactly the same in the two cavities; while in three cases the mouth was higher by 0.1, 0.2 and 0.2°.

Two photographs taken by Mr. Dodd of cases in the children's clinic were also shown.

(*a*) A case of rachitis in a child two and a half years with double coda vara, showing the customary attitude of the child in repose, with both legs lying straight up beside the trunk, the soles being applied to the sides of the face.

(*b*) A case of congenital syphilis, showing marked prominences on the tibial.

Reports of Societies.

BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.

W. E. PAUL, M.D., SECRETARY.

MEETING of April 21, 1904, the President, Dr. G. Alden Blumer, in the chair.

DR. J. W. COURTNEY presented a case of

BILATERAL FACIAL ATROPHY.

I was not present at the last meeting when Dr. B. T. Burley[1] showed his case of bilateral idiopathic facial atrophy, but by the merest chance I came across a case of the same sort a few days ago, and have brought it here to-night to show to you. This little girl, who is now about twelve years of age, was normal in every way up to the age of three. The photograph I am about to pass round, which was taken about that time,

[1] BOST. MED. AND SURG. JOURN., April 14, 1904.

certainly shows no evidence of facial abnormality. Shortly after the age of three the child's face began to take on a pinched and shrivelled look, and the parents feared that the child was going into consumption. They consulted many doctors without avail, marveling themselves all the while that the supposed emaciation should remain confined to the face, as in fact it did. For three years the wasting of the face went on and then appeared to come to a standstill, leaving the child about as you see her to-night.

You will observe that her body is fairly well nourished and that its nutrition is in striking contrast with that of the face, which looks pinched, sunken and senile. On examination the atrophy is seen to be bilateral, and more or less symmetrical, and to involve mainly the skin and subcutaneous tissue, apparently sparing the muscles. There is, furthermore, no demonstrable implication of the jaw or of the tongue, although several of the teeth have come out without obvious cause.

As I am going to report this case *in extenso* later, I shall say no more about it at the present time, but simply have the patient walk about for your inspection.

DR. P. C. KNAPP: If we can judge from this case which Dr. Courtney kindly permitted me to examine the other day, and from the pictures which Dr. Burley has shown, and which other observers have published, there does not seem to be any very marked involvement of the bones in bilateral facial atrophy. In unilateral atrophy, however, the bones seem to be rather frequently involved. I saw a young man of seventeen about twelve years ago, referred to me by Dr. J. T. Bowen, who had unilateral atrophy of two years' duration. The entire half of the face, the cranium and the ear were smaller on the left side. There was a band of whitish, smooth, sclerotic skin starting at the root of the nose and extending upwards, close to the median line on the left side of the forehead, 4 cm. in width and about 12 cm. in length, extending into the hairy scalp to within 3 or 4 cm. of the vertex. The bone was wasted distinctly under this atrophied skin. In another case also the forehead was involved, contrary to the rule stated by Dr. Burley. In this case, and still more in the cases with great atrophy of the bones, it seems doubtful whether paraffin injections would be of much service.

DR. H. R. STEDMAN read a paper entitled

A CASE OF MORAL INSANITY WITH REPEATED HOMICIDES AND INCENDIARISM AND LATE DEVELOPMENT OF DELUSIONS.

DR. C. P. BANCROFT: Dr. Stedman's very interesting report of this somewhat celebrated case arouses anew the old question as to whether a true moral insanity can exist. Is it possible for the moral faculties alone to be affected while the intellect remains unimpaired? Personally I have never seen a case of what seemed to me pure moral insanity. Those cases under my observation that seemed to suggest possible involvement of the moral faculties without intellectual impairment have, on further and closer study, disclosed weakening of the higher intelligence. It has always seemed to me that the old metaphysical division of the mind into faculties must have been a determining factor in the original diagnosis of "moral insanity." The partitioning of the mind into faculties tends to mislead the diagnostician when attempting to reconcile them with pathological processes.

The mental faculties have no very definite demarcation, the one from the other, undoubtedly have no specific brain area in which they are organized and owe their existence to the purely arbitrary conclusions of the metaphysician. Cases do occur in which apparent impairment of one faculty precedes a later involvement of other faculties and demonstrate the solidarity of mind. A case in question under my own personal experience occurs to me. A young woman of fair heredity, with advantages of good early training and environment, at about the age of puberty developed the most perverse and unaccountable sexual appetite. At the age of twenty she so degraded her family that the benefit of the doubt was given her, and she was pronounced insane. For a year she remained under my care, not evincing the slightest sign of intellectual disturbance and stoutly asserted that if she desired to lead an immoral life it was her own affair and that neither I nor her relatives had any legal right to deprive her of her liberty. I began to feel that my further detention of her in the hospital would be untenable and was on the point of ordering her discharge when she broke down into an attack of acute mania. These attacks have occurred ever since with regularity about once a year, and more or less mental impairment began to declare itself. This was undoubtedly a dementing psychosis from the beginning. Moral impairment was the one early symptom manifest, followed by marked psychic explosions later. Nevertheless, could a more minute analysis of this individual's mind have been made in the earlier stages of the psychosis, I believe that a beginning general impairment of the intellect could have been detected, such as weakening of the will, the judgment and the feelings.

I have often thought the term "moral imbecility" more justifiable than "moral insanity." Certainly, cases do occur in which the moral nature seems to be so dwarfed and rudimentary from early childhood as to lead one to infer that its development is impossible. Jesse Pomeroy appears to have been a notable illustration of such a condition. Rarely does it occur that a person, whose mental development has been normal, has an attack of moral insanity without intellectual impairment. The very interesting case of J. T., while for a long period manifesting only moral perversity, certainly at the present time discloses marked intellectual disturbance. Her case appears to be a dementing psychosis, the primary symptoms of which were morbid impulsions, moral obtundity, followed at the present time by delusions, hallucinations and intellectual impairment. The latest manifestations complete the picture of what at first seemed a most obscure case. They demonstrate anew the solidarity of mind and the unwisdom of making a too early diagnosis of "moral insanity."

DR. EDWARD COWLES: Dr. Stedman's report of this important case has been made especially interesting by his careful study of the subject. There are undoubtedly many cases in which intellectual capacity even to a high degree exists in association with more or less complete deficiency of the moral sense that characterizes the class of persons called degenerates. We see all degrees of this deficiency in youth and adolescence. In many cases it can be recognized as simply an indication of backward or unequal development, and may be outgrown; in other cases there is arrest in this regard, causing permanent defect. The term "moral imbecility," as implying the absence of qualities of character never possessed, seems to me to be a proper one to describe such a general characteristic. This term being more generic in its meaning is better than "moral insanity," which seems to imply a definite form of mental disease, while the moral defect to which it refers is only one of the general variations from the normal mental balance in most cases. I recall a number of young cases that quite outgrew this defect as they came to adult life; several of these were pronounced hospital cases that practically recovered,

or were greatly improved under several years of the restraint and discipline in the period of adolescence.

A great deal depends upon the circumstances under which such young persons grow up, and upon their accidental experiences which may be the starting-points of peculiar forms of excitement that create an inclination to repeat them, through curiosity or liking. It would be interesting to know how it would have turned out with this young woman if she had never had the experiences of a nurse and become familiar with the effects of drugs and seeing the unusual manifestations of conditions of sickness and death. These things that suggest unanswerable questionings in some minds might have excited unnaturally an abnormal mind. On the same principle she might have developed a propensity for stealing, or excesses in sexual misconduct under the influences of a favoring environment and experiences. It appears to me that her history shows fundamental inherent defects consistent with considerable intellectual capacity; that the criminal acts being at first carefully concealed and later more frequently and recklessly committed, mark the regular course of a mental disease from its beginning to its latest development in a pronounced form of insanity.

Dr. Walter Channing said that he regarded Dr. Stedman's paper as a very valuable contribution to medico-legal literature. There was no question in his mind that J. T. was insane and that in the true sense of the word she was a degenerate, even though no physical stigmata of degeneracy had been discovered. The mental stigmata as detailed in the evidence in the report just presented were even more important. By what name the disease of which she was the subject should be called is a matter of some difficulty to determine. He regretted that Dr. Stedman had revived the use of the term "moral insanity," which had formerly been a sort of waste basket in our courts for all sorts of doubtful mental diseases to be emptied into. He himself never made use of it in testifying, and hoped that it would not again be introduced into our courts. The form of disease described seemed to him to be closely allied to one of the earlier stages of paranoia, but what Dr. Stedman calls moral insanity and paranoia have much in common. He was strengthened in this opinion by the history of the woman's case since she had been in the hospital, which had undoubtedly developed into real paranoia. This disease often is very slow in its progress, passing through various stages, and it might be that the latest one had now arrived. He did not agree with Dr. Folsom that alienists are multiplying names for the various forms of insanity, nor the danger of including too much within the limits of what could be called mental disease. Many of the old names under earlier systems of classifications had been dropped and others better adapted to our present knowledge of mental disease adopted. There has therefore been really a diminution rather than an increase.

It must be remembered that sanity was an impossible thing to define; as Hirsch had said, it consists substantially in the well-proportioned development of mental attributes, but there might be great variation within pretty wide limits and still indicate no insane condition. Knowledge of insanity was acquired from experience. An opinion might be given with almost unerring conviction, and yet the form of insanity be very difficult to specify with exactness. Far too much importance was attributed to names which might be misleading. The point was to determine if there was an undoubted departure from the normal. He would say in conclusion that he should be sorry that Dr. Stedman had been employed as an expert in this case, if he was to be the means of reviving in court practice the expression "moral insanity."

Dr. G. L. Walton: The applicability of the term degenerate in this connection only serves to emphasize the importance of a substitute for this word in referring to mild deviations from the average normal type. Whether this case should be classed as insanity during the period under consideration is an open question, notwithstanding the fact that mental unbalance of another type has evidently appeared during confinement in the asylum.

With regard to the general question of crime and insanity it is true that the fear of public opinion should not prevent the diagnosis of insanity in the criminal when this diagnosis is clear, but there is danger that in relieving criminals of legal responsibility, arguments may be made to serve which would be given little weight as bearing on the question of depriving an ordinary individual of his liberty. If a criminal has shown himself capable of properly registering impressions, and of formulating appropriate lines of conduct based upon those impressions, and of carrying out those lines of conduct, due allowance being made for his education, surroundings and social station, the mere fact that he does not carry out such lines of conduct, and that he expresses no remorse for this failure, is not necessarily evidence of insanity. Very strong evidence should be added, it seems to me, of mental defect other than moral, before he should be deemed legally irresponsible.

Without claiming ability to formulate a plan for the management of the many morally oblique and criminally reckless individuals who are working havoc in society and causing pecuniary loss and shame to their relatives and friends, I may venture to suggest that in applying too fine an analysis to their mental processes we are in danger of losing sight of the interests of the community and of granting certificates of immunity on a scale whose liberality is bound eventually to bring about a reaction on the part of the public, whose rights we are in danger ourselves of ignoring in our pursuit of the absolute in science.

Dr. C. A. Drew: I feel a deep appreciation of the privilege of having heard Dr. Stedman's paper. The case is certainly not an ordinary one. The moral imbecile is a fairly common character at the State Asylum for Insane Criminals. But it seems to me that J. T. was, or is, at least, more than a moral imbecile. The moral imbecile as we see him is apt to remain merely a moral imbecile to the end of the chapter. Hallucinations do not seem to be a necessary part of his symptom complex, and what irrational ideas he has are, as a rule, hardly fixed enough to be called delusions. The great majority of these cases of ours could be classed more fittingly as "deviates," if you will accept Dr. Walton's term, which I think fits the moral imbecile better than the word degenerate. But J. T. seems to be a degenerate. It seems to me as if the mental deterioration has been too rapid and the mental states too quickly alternating to call the case paranoia, if we use that term as synonymous with primary delusional insanity. It looks to me as if the case was one of the rapidly dementing psychoses, although moral imbecility with perverted impulses and instincts might have explained most of the early symptoms.

Dr. P. C. Knapp: Although it is doubtful whether we can regard "moral insanity" any more than mania and melancholia as a distinct disease, the term is certainly useful as applied to a certain fairly definite symptom group. Various cases come each year under my observation presenting the symptoms usually classed under this heading. There is almost invariably

some intellectual failure, but at first sight the patient appears to be bright and intelligent, and sometimes he has a precocious smartness. Careful observation, however, usually reveals considerable intellectual defect.

Dr. Stedman's report, based on so long study and observation, leaves no doubt as to the insanity of this case, which has now been fully confirmed by the subsequent course. The fact that this patient had a copy of Krafft-Ebing's "Psychopathia Sexualis" has been brought forward as a proof of her feigning, but the diagnosis, as I understand, was not based upon the existence of any sexual perversion, and the alleged form of sexual perversion described by the patient is not mentioned in Krafft-Ebing.

DR. ARTHUR V. GOSS: I can add nothing to the masterly analysis of this case as presented by Dr. Stedman. When she was admitted to the Taunton Insane Hospital the medical staff was, if anything, inclined to the opinion that she was responsible for her acts. They all studied her case independently and almost without consultation, with the result that each and all were convinced of her mental unsoundness before the development, or at least the appearance, of delusions. At present she is suffering from delusions of persecution and poisoning with hallucinations of hearing.

DR. H. W. MILLER: I agree in the main with the reader's conclusions. The diagnosis depends upon the question as to whether one is willing to accept the entity of a disease which involves only the feelings and affections without involvement of the other intellectual faculties. This condition has been called moral insanity. In this case in spite of the absence of anatomical stigmata of degeneration I believe that there existed a congenital defect, and that her untruthfulness, dishonesty and criminal acts are an outcome of this defect. I do not think that there has been any psychosis grafted on the above condition. Owing to her general unreliability I think we are justified in doubting the presence of hallucinations, though it certainly looks as though she has delusions.

During her hospital residence she has shown nothing inconsistent with the diagnosis of moral insanity; I have been for some time firmly convinced of her insanity.

DR. E. STANLEY ABBOT: It may be of some interest to those present to know that J. T. nursed in two families with which I am intimately acquainted, and that she was the nurse in attendance during the last illness of each. In one family she had previously nursed two or three times. The impression she made upon both families, which has not been changed by the subsequent developments in her career, is of one having some of the best of nurse-like qualities. She did not upset the households into which she went; she got on well with the servants in the house; she was thoughtful and attentive to the patient in many ways; she was ready to sacrifice her own comfort and convenience to that of the patient; she was wisely sympathetic, and she showed intelligence and good sense. Such was the judgment of persons of education and discrimination.

If she could behave continuously so well as to leave such an impression on such persons, I cannot help thinking that she was able to control her conduct in relation to the persons whom she poisoned. She killed them to gratify a feeling of pleasure, as men drink or yield to other minor indulgences to gratify their pleasures, but she was under no internal compulsion. Believing as I do that it is of the essence of insanity that the insane person cannot help thinking, feeling or acting as he does, I must regard J. T. not as insane, but as criminal, and the symptoms that she now presents are due to a psychosis superimposed on a constitutional defect.

I should agree with Dr. Cowles that moral imbecility is a better term for such a condition as she appears to have than moral insanity, and moral deficiency is better still, since the word imbecility suggests intellectual deficiency, which may not be present in moral defectives. Not having heard the first portion of Dr. Stedman's paper, I may have lost some data which would make me see the case in a different light, but from what I did hear and from my own slight knowledge of the patient, I should regard her as an intelligent moral deficient.

DR. STEDMAN in closing said that the discussion showed that moral insanity had well borne out its reputation as the "red rag" of psychiatry. He enumerated a number of the foremost modern authorities on mental diseases, who not only classify moral insanity as one of them, but who devote special chapters to its consideration. It was rather striking, too, that not only the name but the conception of the disease or defect had, unlike so many mental conditions which were once thought to be entities, undergone little or no change. Its study is much simplified by separating secondary or symptomatic moral insanity, of which the adolescent case cited by Dr. Bancroft is evidently an example, from the true primary and congenital form represented in J. T. Whether we label the condition a disease or a defect seems of less consequence when we consider the hereditary, congenital origin of degeneration-insanity in general and the fact that there are many points at which imbecility proper and paranoia, which has been called a "partial imbecility," approach each other.

It is common knowledge that the habit of wrong doing may be acquired to such an extent that crimes excite no feeling. This applies, however, to the insane as well as to the sane criminal. But the instant, instinctive readiness with which the first step in crime is taken, the great rapidity with which the propensity becomes firmly established and the extremes of crime and bestiality reached are identifying marks of degeneration-insanity of this order.

[The view that we are dealing in J. T.'s case with a dementing psychosis is hardly tenable, as her mind has lost in all this time little of its acuteness. On the other hand she has developed the intellectual perversion without appreciable loss of mental *power*, that is: dementia, which is only found among insanities of degeneration. As to the danger of too much liberality in granting certificates of insanity in criminal cases we should say that before becoming anxious about a remote contingency, to our mind far from probable, it would be well to turn people's attention more often to the fact that many so-called criminals are regularly convicted only to be found insane in a short time and transferred to the asylum, for want of preliminary expert examination of their mental condition. It is such methods as this which help to substantiate McPherson's belief that the law has hitherto certainly erred on the side of severity and has hanged ninety-nine irresponsible persons for one responsible person who has escaped on the plea of insanity.]

THE Missouri State Medical Association, according to the *Medical Record*, has decided to publish its transactions in the form of a monthly medical journal and the initial number of the *Journal of the Missouri State Medical Association* appeared on July 1. Dr. C. M. Nicholson is editor, assisted by six collaborators.

AMERICAN GYNECOLOGICAL SOCIETY.

TWENTY-NINTH ANNUAL MEETING, HELD IN BOSTON, MASS., MAY 24, 25 AND 26, 1904.

(Continued from No. 2, p. 50.)

SECOND DAY. — (Continued.)

SYMPOSIUM ON INJURIES TO THE PERINEUM.

THE PREVENTIVE TREATMENT OF PELVIC FLOOR LACERATIONS.

DR. J. CLIFTON EDGAR of New York read the first paper. The most important part of the management of the second stage of labor was the prevention of pelvic floor lacerations; lacerations of the fourchette in primiparæ, and superficial tears about the vulvar orifice in both primipara and multipara, often occurred, were often unavoidable, and usually readily healed with simple asepsis. Deep lacerations were avoidable in normal, ordinary cases of labor.

The factors which tended directly or indirectly to produce pelvic floor lacerations were numerous, but for convenience he arranged these in three major classes. These were concisely stated as (1) too rapid expulsion of the fetus, so that tearing instead of stretching resulted. (2) Relative disproportion in size between the presenting part and the parturient outlet. (3) A faulty mechanism of labor, whereby the larger circumference of the head and shoulders than necessary passed through the parturient outlet.

From an extended clinical experience, he could speak most enthusiastically of the preliminary digital stretching of the vulvar outlet in primiparæ, and especially in elderly primiparæ, as a prophylactic measure in perineal protection. The author then discussed episiotomy, head delivery, and cleidotomy. Regarding shoulder delivery, the author firmly believed, from years of careful clinical observation, that the posterior shoulder was responsible for many instances of deep, pelvic floor laceration. Furthermore, that moderate ruptures caused by the passage of the head were often increased and rendered serious by the subsequent passage of the posterior shoulder.

He had been most successful in the following method of shoulder delivery, and either the lateral or dorsal posture of the patient could be used at will. This method was not new:

(1) The delivery of the shoulders was delayed, if possible, until nearly complete rotation of the bisacromial diameter had taken place. (2) The fetal head was taken in the hand and gently raised or pushed, so as to bring the anterior shoulder well up behind the symphysis, thus giving the cervico-acromial diameter of the fetus at the outlet instead of the bisacromial. (3) The posterior shoulder was now allowed to pass out spontaneously, and whenever possible, manual extraction should be avoided, as this increased the risk of perineal rupture. (4) During the detention of the anterior shoulder behind the symphysis, the fetal hand of the opposite arm lying across the fetal chest would usually soon appear in the vulva. He had found that delivery might be safely assisted by slowly flexing this forearm and arm out through the vulva and thus delivering the posterior shoulder by slight traction on the posterior arm. (5) Should the foregoing be impracticable, and delay in the expulsion of the posterior shoulder occur, he had found gentle traction upon the head, the fingers encircling the neck, to be preferable to traction with a finger in the axilla. (6) Should there be delay in the delivery of the anterior shoulder, after expulsion of the posterior, it was best remedied by making traction directly downwards, with the hands placed on the sides of the head, taking care not to make too great pressure on the perineum. As a last resort, traction might be made by a finger in the axilla.

IMMEDIATE REPAIR OF LACERATIONS OF THE PERINEUM, WITH SPECIAL REFERENCE TO PLACING THE SUTURES BEFORE THE LACERATIONS OCCUR.

DR. LAPTHORNE SMITH of Montreal spoke of the importance of closing up even small tears of the perineum, so as not to leave raw surfaces for septic absorption. It was important to close large tears so as to retain the function of the pelvic muscles. The best time to put in these stitches was just before the head pressed on the perineum, while the patient was anesthetized, and before the parts had lost their relative positions. With the left finger in the vagina and the thumb in the rectum, a large perineum needle on a handle was passed just under the vagina, threaded with silkworm gut; the two or three stitches hung loosely in a Pean forceps until the placenta had been delivered, when they were quickly tied, bringing the parts exactly together as they were before the tear.

(To be continued.)

Recent Literature.

Graves' Disease, With and Without Exophthalmic Goitre. By WILLIAM HANNA THOMSON, M.D. LL.D. 8vo. pp., vi, 143. New York: William Wood & Co. 1904.

In the volume before us the author maintains the thesis that Graves' disease is a toxemia of gastro-intestinal origin, with well-defined symptoms, among which neither exophthalmos nor goitre is to be regarded as of chief importance, the implication of the thyroid, when it occurs, being secondary to the toxemia. This thesis is based upon a study of seventy-three personal cases, forty-four with goitre and twenty-nine without; four of these cases, two in each class, terminated fatally. The most striking symptoms are tachycardia, palpitation, nervousness, tremor, headaches, characteristic digestive disturbances, insomnia, and the fact that all these symptoms are worse in the morning. The disease is chronic, occurring in families and sometimes associated with migraine. Death is apt to be sudden from syncope. Noteworthy success has been attained by treating the gastro-intestinal disorder chiefly by a long-continued milk diet. Thyroidectomy is denounced. It is apparent that these opinions as to the nature of Graves' disease are radically different from those that have obtained in recent years, since our enlarged knowledge as to the functions of the thyroid led to the belief that Graves' disease was of thyroid and not of vasomotor origin. That cases of Graves' disease occur without exophthalmos or goitre must be admitted, and gastro-intestinal disturbances are common in all types of the disease. Whether the author's views will ultimately be accepted is uncertain, but they are based on a wide experience of the disease, and the present volume is one that must be considered in future study of the subject.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, JULY 21, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

WAS JANE TOPPAN RESPONSIBLE?

IN another part of this issue we publish the detailed report from Dr. H. R. Stedman's pen of the medical history of Jane Toppan. Dr. Stedman, it will be remembered, was one of three experts, the others being Dr. H. M. Quinby and Dr. George F. Jelly, appointed by the Court to investigate the mental condition of the nurse, Jane Toppan, who had been indicted on the charge of murder. The extraordinary character of the crimes charged against her, and the widespread publicity given to the events which finally led to her arrest, combined to render the case one of the most widely discussed of recent years. It is, therefore, a matter of great interest that an authoritative statement of her life and the development of her disease has finally been given.

It was natural that difference of opinion should have existed regarding the question of her criminality and responsibility. In such cases the subtle and uncertain distinctions between sanity and insanity, and between moral responsibility and deliberate crime, are peculiarly difficult to determine. No greater burden could well be placed upon an expert's shoulders than this. The decision reached by the gentlemen called in the case was that the prisoner was not responsible for her acts, by reason of insanity, and she was thereafter committed to the Taunton Insane Hospital by order of the Court, where she has since remained under the conditions described in Dr. Stedman's paper.

Commenting on the case editorially at the time of the trial in 1902, we said: "The medical expert's question of mental unsoundness settled, there still remains the personal equation and the question of accountability. We shall await with great interest the forthcoming analysis of the evidence in this case and the expert statement, which we are promised, of the medical opinions formed and of the facts upon which those opinions are based. In the meantime, we shall not attempt to express our opinion on the question of Jane Toppan's responsibility."

The events of her hospital life, as since developed, can leave no doubt of her mental unsoundness, and we think also none of her lack of accountability as judged by ordinary standards. The evidences of mental decay have been increasingly apparent, and there can be no question that her proper classification is among the insane. In view of the present condition and its development, the existence of mental unsoundness extending over a long period of years is altogether probable, and undoubtedly fully justifies the expert opinion delivered at the time of her trial.

It must, however, be distinctly remembered that the difficulties of discovering the means used by her were such that detection of her implication in the deaths of her victims was almost impossible. Her method of administering deadly drugs was such that the patient was usually wholly unaware of what he or she was taking. In the second place, a physician was usually not summoned until the patient was moribund; and, finally, her method of combining drugs in such a way that their action gave rise to unusual and perplexing groups of symptoms, rendered it at times impossible to determine the real nature of the illness. Attempts to determine the cause of death by post-mortem examinations were uniformly opposed by the nurse. This combination of circumstances certainly is sufficient to explain her long immunity from detection, and under the circumstances we are forced to the conclusion that her earlier detection, enjoying as she did the confidence of those with whom she was associated, was well nigh impossible. Only the final act of her career, which led to the death of four patients in one family, was sufficiently extraordinary to lead to the investigation which resulted in her arrest.

The case will soon pass into history, but not, we trust, without having taught its unique lesson.

THE VISIT OF PROFESSOR HOFFA.

IN spite of our anti-imperialistic contemporaries we must admit there are certain advantages which come to the inhabitants of a well-advertised world power. Now that Secretary Hay is supposed by some Continental observers

to hold the destinies of the Pacific and the future of the Orient in his portfolio, and is publicly honored by the French Government for his efforts to preserve the peace of the world, it is natural that gifted foreigners should wish to examine at close range the conditions of a country which, though not old, in its influence, as our poet tells us, "was never young." Many of our readers may recall one of Mr. Lowell's brilliant essays, "A Certain Condescension in Foreigners," satirizing a common attitude of the visitors of that time. Those who come among us now "taking notes" bring a different spirit, though fortunately they still are critical, giving us often the benefit of their "impressions" to temper our growing tendency toward self-content, which comes with and is the peril of prosperity, as complacency is the *arcus senilis* of national character. It is of the greatest advantage to see ourselves as others see us when the "others" are unusual and remarkable men. The English Commissioners who have studied us, the French literary critics who have lectured to us, have all brought gifts without giving us reason to fear them, and their example has been followed within the last few years by several most distinguished Germans, who have brought to us their example of thorough skill and brilliant achievement.

Professor Hoffa, our most recent visitor, came with a commission from the Berlin Government to examine our municipal ambulance systems and report upon them. He timed his visit, however, so as to present a paper at the meeting of the American Orthopedic Association at Atlantic City. His experiences in the treatment of congenital dislocation of the hip has been followed by an unusually high percentage of success, as might be expected from the fact that he was one of the early investigators in the subject, and has devoted to it much study, unusual skill, thorough training and a broad, intelligent spirit of eclecticism rather than that of a partisan of a special method. Manipulative reduction he practices in the less difficult cases, but when this is impracticable he advises opening the capsule, deepening the acetabulum, when shallow or filled with fibrous tissue, and a careful replacement of the head. The necessary dissection is neither extensive nor destructive and the method leaves nothing to chance.

The treatment of paralytic deformities by tendon and muscle transference has been brought in Germany to a valuable state of efficiency, and Dr. Hoffa gave, while here, a demonstration at the Children's Hospital of his admirable operative skill in the employment of this method.

Unfortunately the harvest of congenitally dislocated hips had been so thoroughly garnered in this community that no case could be found for his ministrations. In New York, Philadelphia and Chicago, however, he was able to demonstrate his method of operative reduction.

Let us hope that our country will continue to "expand" if thereby we can attract to ourselves such agreeable and valuable visitors.

PLAGUE IN THE TRANSVAAL.

A REPORT has recently been published giving certain details of a recent outbreak of plague in the Transvaal, to which the *British Medical Journal* alludes in an abstract of the report and also editorially. It appears that in 1903 pneumonia gave origin to a scare regarding plague, but it was afterwards determined that at least the great majority of cases was due to a septicemia induced by streptococci or pneumococci. A later outbreak of plague, however, has led to the assumption that certain of these cases of so-called pneumonia were in reality plague.

On March 18 of this year it was announced that certain Asiatics living in the "Coolie" location were apparently ill with pneumonia. The following day five corpses and twelve sick persons were found in one house. In three of these cases, together with pneumonic consolidation, microscopic examination disclosed organisms of the morphology of plague bacillus, and the same organism was also found in the sputum of a Coolie suffering from pneumonia. A cordon about this locality was thereafter made and a house to house inspection within the insanitary area instituted. Twenty-six deaths were shortly recorded, all presenting symptoms of pneumonia and all showing the presence of plague bacilli. The plague staff was enlarged, additions were made to the numbers of rat catchers, and drastic measures were forthwith adopted. In the first place the plague committee transferred the entire population in the "Coolie" location to a segregation camp, numbering 3,100 persons. Twenty-four days after this transfer but one death had occurred. The area of infection was surrounded by a galvanized wire fence, animals found in it were killed, and the entire place burnt to the ground. Various general measures were taken regarding suspects, disinfection and medical examinations with most gratifying results.

The origin of this epidemic has not been

definitely discovered. The final explosive outbreak is held to have been due to the fact that plague was masked by the coincident presence of pneumonia in many cases. The brief history of this epidemic and its vigorous suppression serves as an interesting commentary on the admirable methods now available for checking a disease which, under unfavorable conditions, quickly becomes a menace of great moment. Such incidents as that narrated leave no doubt that plague, like many other infectious diseases, may under ordinary conditions be suppressed.

Commenting on the event editorially, the *British Medical Journal* expresses the conviction that the public health departments of the Transvaal and Johannesburg fully appreciate that the danger of a recurrence cannot be by any means neglected. It seems that the infection was imported into the Transvaal by rats in forage, and even if domestic rats and other domestic animals are not still infected, the risk of further importation cannot be ignored.

MEDICAL NOTES.

REGISTRATION OF DENTISTS. — The Massachusetts Board of Registration in Dentistry has passed fifty-five out of one hundred and three candidates desirous of practising in this state.

CHAIR OF HYGIENE, BERLIN. — It is announced that Prof. Georg Gaffky of the University of Geissen has accepted Professor Koch's chair in hygiene at the University of Berlin, Professor Koch having resigned the directorship of the Berlin Hygienic Institute. Gaffky was Koch's earliest assistant, and it is said to have been Koch's wish that he should succeed him as director of the well-known hygienic institute. His work has been largely experimental in connection with various bacteriological problems.

TUBERCULOSIS DISPENSARY, WESTERN RESERVE MEDICAL SCHOOL. — It is proposed to establish a dispensary for the special treatment of tuberculosis in connection with the medical school of Western Reserve University. One of the chief functions of the dispensary is prophylactic. Those infected with the disease will be registered; houses occupied by consumptives located; education of the people in matters of hygiene prescribed; visits to the school made; and instructions to those having the disease instituted.

HONORARY DEGREES FOR MEDICAL MEN. — The *Medical Press* makes the following statement: "The honorary degree of D.Sc. will be conferred upon the following members of the profession at the meeting of the British Medical Association at Oxford on July 27: Dr. T. C. Allbutt, F.R.S.; Mr. Andrew Clark, F.R.C.S.; Dr. Thomas D. Griffiths, President of the British Medical Association; Mr. Jonathan Hutchinson, F.R.S.; Sir William MacEwen, M.D., F.R.S.; Sir Patrick Manson, K.C.M.G., M.D., F.R.S.; Sir John W. Moore, M.D.; Dr. William Osler, F.R.S.; Dr. Thomas G. Roddick, M.P. (Canada), a former President of the British Medical Association.

BELLEVUE HOSPITAL'S FAMOUS WARD 32. — According to the *New York Medical Journal* in the last nine years there have been 51,000 alcoholic patients at Bellevue Hospital, not counting the repeaters. Of this number, 66% were between thirty and forty-nine years of age. A series of 125 cases has been studied, showing that as a rule male drunkards live longer than female. Seventy-five per cent of all chronic alcoholics have fatty degeneration of the liver. Many have brown atrophy of the heart. The kidneys are never normal. Fifty per cent of the drunkards have gastritis. By the coating of the tongue and the character of the tremor the length of a spree can be accurately determined. The drunkard often "sees things," but rarely has his sense of smell impaired. Patients who drink absinthe are particularly liable to convulsions.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, July 20, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 31, scarlatina 9, typhoid fever 9, measles 41, smallpox 0.

GRADUATES IN MEDICINE, HARVARD MEDICAL SCHOOL. — At the recent commencement exercises of Harvard University, 130 students received the degree of M.D.

NEW YORK.

TRAINING SCHOOL OF BETH ISRAEL HOSPITAL. — The graduation exercises of the first class, twelve in number, to complete the course at the training school for nurses connected with Beth Israel Hospital, were held on July 12. This Jewish hospital, which is situated in the crowded tenement district of the lower East Side and was begun fifteen years ago in a very humble way, now has a capacity of one hundred and thirty beds, and has recently acquired property adjoining the hospital building on which to establish a nurses' home.

Inspection of Milk. — The Health Department inspection of milk is properly very rigid at this season of the year. Out of 869 shops selling milk which were visited by the inspectors during the thirty days ending July 8, 365 were found where there were connecting rooms used for living purposes. One hundred were found where the milk on sale was at a higher temperature than the law permits, but where there were no connecting rooms, while ninety-six cases were found of violations of the law as regards both temperature and connecting rooms. Altogether, in 64½% of the shops visited the ordinances were found to be violated in one way or another.

Vacation Schools and Playgrounds. — The ten weeks' summer session provided by the Department of Education opened on July 11. This year there are thirty-nine vacation schools and eighty-four playgrounds operated by the department. Nature study is taught as a general subject by forty practical experts, and one thousand teachers are employed in instructing the children in manual branches of various useful kinds, gymnastics and kindergarten. In some of the playgrounds the planting and care of vegetable and flower gardens will be taught. Altogether, the vacation school system would seem to be productive of great good, mental and moral, as well as physical, to the children of the poor. A new departure this year is the utilization of eleven schoolhouses with flat roofs, on which free band concerts are given each night for the general public.

Commission to Investigate Pneumonia. — In consequence of representations made by Dr. Darlington, President of the Board of Health, in regard to the unusual prevalence, for this season of the year, of pneumonia, the Board of Estimate and Apportionment, at a meeting held July 15, made an appropriation of $10,000 to defray the expenses of an expert commission to investigate the subject and devise means for the checking of the disease. The selection of the members of the commission is left with Dr. Darlington, and they will be appointed within a short time.

Obituary.

ISRAEL THORNDIKE DANA, M.D.

Israel Thorndike Dana was born in Marblehead, Mass., June 6, 1827. He died in Portland, Me., April 13, 1904. He was the youngest of fourteen children of Rev. Samuel Dana. His mother was Henrietta, daughter of Dr. Richard P. Bridge.

After receiving the degree of M.D. from the Harvard Medical School in 1850, he spent two years in post-graduate study in Paris and Dublin. Following the advice of Dr. Pearson of Salem, in June, 1852, Dr. Dana began practice in Portland. His service to this community at the time of his death antedated that of any other physician.

He was one of the founders of the Portland Dispensary. In 1856, together with Dr. William C. Robinson and Dr. Simon Fitch, he established the Portland School for Medical Instruction. From 1860 to 1862 he was professor of Materia Medica at Bowdoin College; and from 1862 to 1897, excepting an interval between 1870 and 1880, he was professor of the Practice of Medicine at Bowdoin College. Dr. Dana was an active force in the founding of the Maine General Hospital. He served for twenty years as one of the visiting physicians, and afterwards as a consulting physician who was actually consulted. In 1868, he was president of the Maine Medical Association. He was one of the first members of the Harvard Medical Alumni Association to hold the office of vice-president. Dr. Dana was a charter member of the Association of American Physicians, and a few years before his death was made one of the honorary members.

Possessed of the talent which these places of honor and usefulness imply, Dr. Dana's advice as a consultant was widely sought. His specialty, if he had one, was internal medicine, his professional interest directing itself particularly to diseases of the heart and lungs. A keenly-observant colleague says: "The Doctor Dana of thirty years ago was an alert and accurate diagnostician, — a model of what a resourceful physician ought to be."

Of Dr. Dana's ten children, three died in infancy. The vigorous and useful lives of three others, after reaching maturity, were brought to a sudden close. One of them, William Lawrence Dana, was a surgeon who well deserved paternal pride for what he was, and for what he seemed about to be.

Dr. Dana's father, his father's father, and two of his father's brothers were Congregational clergymen. Inheritance, training and habit put into his life a large endowment of orthodox religion. It has been remarked that his own leadership in medicine received the same sort of tacit recognition which, in old New England times, it was customary to pay the parson. Dr. Dana was a fine example of a certain type of Puritan dignity, mellowed in him, perhaps, by the two years of life among people of Celtic race. At times his suavity of manner was fortitude in action. A presuming person or an unethical transgressor found him an unsafe mark. His rebuke came at the effective moment. His voice was still urbane, but the words were like bullets, and the aim was true. Representing, as it does, a life of consistent service, of distinction acquired and held by faithful endeavor, the name of Israel Thorndike Dana will long be held in honor by his children, his patients, his colleagues and his friends.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 9, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Cerebro-spinal Meningitis.	Diarrheal Diseases.
New York . .	3,908,644	1,641	780	42.29	8.77	1.76	2.07	26.81
Chicago . . .	2,021,086	395	84	28.60	8.35	1.00	—	7.85
Philadelphia	1,407,968	444	192	38.06	4.50	1.12	—	23.87
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	250	125	44.80	1.20	1.20	—	28.80
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	134	—	44.77	4.48	1.49	.75	21.64
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee . .	335,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	74	35	40.53	1.35	2.70	—	25.67
Boston . . .	617,950	172	43	20.93	7.56	2.90	.58	2.90
Worcester . .	136,925	26	10	15.38	—	—	—	7.69
Fall River . .	119,349	—	—	—	—	—	—	—
Lowell . . .	104,402	28	9	28.57	3.57	—	—	25.00
Cambridge . .	100,998	8	2	25.00	—	—	—	—
Lynn	73,875	17	3	11.16	—	—	—	—
Lawrence . .	72,348	25	6	36.00	12.00	—	—	20.00
Springfield .	72,020	13	5	15.40	—	—	—	—
Somerville .	70,413	10	2	10.00	20.00	10.00	—	—
New Bedford	68,563	17	5	23.53	11.76	—	—	11.76
Holyoke . . .	50,538	19	7	52.63	5.26	—	—	31.57
Brockton . .	46,601	8	4	12.50	—	—	12.50	—
Newton . . .	39,310	9	1	—	—	—	—	—
Haverhill . .	39,061	5	—	20.00	—	—	—	—
Malden . . .	37,205	11	2	9.09	—	—	—	—
Salem	37,188	13	1	7.70	—	—	—	—
Chelsea . . .	36,499	9	0	11.11	11.11	—	11.11	—
Fitchburg . .	36,335	4	1	25.00	—	—	—	—
Taunton . . .	34,577	8	3	12 50	—	—	—	—
Everett . . .	30,209	3	1	33.33	—	—	33.33	—
North Adams	29,201	2	—	—	—	—	—	—
Quincy . . .	26,798	6	—	50.00	16.67	—	16.67	16.67
Gloucester . .	26,121	4	1	—	—	—	—	—
Waltham . .	25,797	6	1	33.33	—	16.67	—	—
Brookline . .	23,576	7	—	28.60	—	—	—	—
Pittsfield . .	22,870	5	2	20.00	—	—	—	20.00
Medford . .	21,956	7	—	14.30	—	—	—	—
Chicopee . .	21,692	6	3	50.00	16.67	—	—	50.00
Northampton	20,314	4	1	25.00	—	—	—	—
Beverly . . .	15,807	6	1	16.67	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	8	2	12.50	—	—	—	—
Adams . . .	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	6	1	33.33	—	16.67	—	16.67
Newburyport	14,478	4	1	—	—	—	—	—
Woburn . . .	14,315	5	2	20.00	20.00	—	—	—
Melrose . . .	13,819	2	1	—	—	—	—	—
Westfield . .	13,809	4	1	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	3	1	—	—	—	—	—
Revere . . .	13,609	2	—	—	—	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,324	1	0	—	—	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	3	1	—	—	—	—	—
Weymouth .	11,350	0	—	—	—	—	—	—
Plymouth . .	11,139	4	2	25.00	—	—	—	—

Deaths reported, 3,438; under five years of age, 1,352; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,283; acute lung diseases 233, consumption 358, scarlet fever 20, whooping cough 9, cerebrospinal meningitis 40, smallpox —, erysipelas 1, puerperal fever 15, measles 20, typhoid fever 39, diarrheal diseases 730, diphtheria and croup 52.

From whooping cough, New York 6, Chicago 2, Philadelphia 1. From measles, New York 15, Chicago 1, Philadelphia 1, Pittsburg 1, Boston 1, Plymouth 1. From cerebrospinal meningitis, New York 34, Pittsburg, 1 Boston 1, Brockton 1, Chelsea 1, Everett 1, Quincy 1. From typhoid fever, New York 9, Chicago 4, Philadelphia 7, Baltimore 1, Pittsburg 16, Boston 2. From erysipelas, New York 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending June 25, the death-rate was 13.2. Deaths reported 3,867; acute diseases of the respiratory organs (London) 64, whooping cough 84, diphtheria 48, measles 180, smallpox 4, scarlet fever 27.

The death-rate ranged from 4.7 in Willesden to 22.3 in Birkenhead; London 12.8, West Ham 10.5, Brighton 17.3, Southampton 10.2, Plymouth 11.4, Bristol 13.2, Leicester 10.7, Nottingham 13.6, Liverpool 17.8, Bolton 9.5, Manchester 17.3, Salford 16.9, Bradford 14.6, Leeds 12.4, Hull 13.8, Sheffield 11.2, Cardiff 10.4, Rhondda 13.6, Wigan 13.3, Merthyr Tydfil 15.8, Handsworth 13.1, Stockport 18.3.

METEOROLOGICAL RECORD.

For the week ending July 9, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A.M.	Relative humidity. 8.00 P.M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A.M.	Direction of wind. 8.00 P.M.	Velocity of wind. 8.00 A.M.	Velocity of wind. 8.00 P.M.	We'th'r * 8.00 A.M.	We'th'r * 8.00 P.M.	Rainfall in inches.
S. .3	30.18	64	72	56	64	54	59	N W	N W	13	14	C.	C.	0
M. .4	30.20	68	79	57	53	80	66	S W	S	6	15	O.	C.	0
T. .5	29.98	76	86	67	80	86	83	S W	S	13	6	O.	O.	.39
W .6	30.02	72	77	68	76	91	84	N	S	6	8	O.	F.	.03
T. .7	30.07	69	74	64	85	90	88	E	E	6	5	O.	O.	0
F. .8	30.12	70	76	63	87	71	79	S E	S E	2	9	O.	O.	0
S. .9	30.11	68	63	74	72	85	78	S E	S E	3	7	C.	F.	0
☞	30.10		75	64			77							.42

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JULY 16, 1904.

H. D. WILSON, passed assistant surgeon. Detached from the "Vicksburg" and ordered home to wait orders.

G. L. ANGENY, passed assistant surgeon. Orders of March 16, modified; ordered to duty at the naval station, Culebra, W. I., with additional duty with the Marine Detachment at that place.

T. C. CRAIG, surgeon. Retired, relieved from duty as member of a committee for fixing a standard for diphtheria antitoxin, under orders of June 30, 1902.

J. M. STEELE, surgeon. Detached from the naval station, Port Royal, S. C., and ordered home to wait orders.

W. P. KEENE, acting assistant surgeon. Detached from duty on board the second torpedo flotilla and ordered to the naval station, Port Royal, S. C.

R. A. CAMPBELL, acting assistant surgeon. Ordered to duty on board the second torpedo flotilla.

L. W. BISHOP, assistant surgeon. Ordered to the navy yard, New York, N. Y.

J. H. BACKUS, assistant surgeon. Detached from the "Annapolis" and ordered home to wait orders.

RECENT DEATH.

OTIS HENRY JOHNSON, M.D., M.M.S.S., died in Haverhill, July 16, 1904, aged sixty-three years.

BOOKS AND PAMPHLETS RECEIVED.

A Manual of Surgical Diagnosis. By James Berry, B.S., F.R.C.S. Philadelphia: P. Blakiston's Son & Co. 1904.

A Text-book of Human Physiology. By Albert P. Brubaker, A.M., M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

Les Fractures de l'Humérus et du Fémur par le Dr. Théodore Kocher. Traduit de l'Allemand par le Dr. Ls. Senn. Genève: Henry Kündig; Paris: Félix Alcan. 1904.

Obstetric and Gynecologic Nursing. By Edward P. Davis, A.M., M.D. Second Edition. Revised. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

A Text-book of Mechano-Therapy (Massage and Medical Gymnastics). Prepared for the Use of Medical Students, Trained Nurses, and Medical Gymnasts. By Axel V. Grafstrom, B.Sc., M.D. Second Edition, Revised and Enlarged. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

A Reference Handbook of the Medical Sciences. Embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By Various Writers. A New Edition, Completely Revised and Rewritten. Edited by Albert H. Buck, M.D. Vol. viii. Illustrated. New York: William Wood & Co. 1904.

The Surgery of the Heart and Lungs. A History and Résumé of Surgical Conditions found therein, and Experimental and Clinical Research in Man and Lower Animals, with Reference to Pneumonotomy, Pneumonectomy and Bronchotomy, and Cardiotomy and Cardiorrhaphy. By Benjamin Merrill Ricketts, Ph.B., M.D. Illustrated. New York: The Grafton Press. 1904.

Original Articles.

CONGENITAL DISLOCATION OF THE HIP.

I.

REPORT OF THE ORTHOPEDIC STAFF OF THE BOSTON CHILDREN'S HOSPITAL BASED UPON OBSERVATIONS ON 144 CASES.

E. H. BRADFORD, M.D., R. W. LOVETT, M.D., E. G. BRACKETT, M.D., AUGUSTUS THORNDIKE, M.D., JOHN DANE, M.D.,
Orthopedic Staff of the Boston Children's Hospital.

CONGENITAL dislocation of the hip has, until recently, been generally regarded as an incurable deformity which the wise surgeon would let alone. We have, however, been taught in the last decade that reduction of this dislocation in suitable cases is a safe procedure with a reasonable chance of success. It has been demonstrated that the necessary operation requires skill, but not skill beyond the reach of those who have followed the teachings of others and turned their attention to the details of the subject. This can fairly be regarded as an advance in surgical science. Reduction of the dislocated head, however, does not necessarily establish a permanent cure. The percentage of relapses after successful reduction has been found, even in the hands of the most skilled operators, to be unsatisfactorily high.

The following paper is based upon the experience collected at the Boston Children's Hospital and is in the nature of a report with conclusions drawn from 144 cases, 128 being treated at the hospital, treated in a variety of ways. The record of the hospital is an unusual one, as the study of the treatment of this affection has been a continued one in this institution from the time of the first attempts in this country in treating this deformity until the present when the reduction has become an accepted procedure in surgical practice. The staff of the hospital has had the benefit of consultations with that pioneer investigator, Dr. Buckminster Brown of Boston, and also with Dr. Abner Post who was the first to attempt manipulative reduction of a congenitally dislocated hip under an anesthetic, with Professor Hoffa of Berlin and Professor Lorenz of Vienna, both of whom performed operations according to their different methods. The first attempt at treatment of this affection by operative incision in this country was made at the Children's Hospital by Dr. Burrell, and the first case treated in this country by the manipulative method, now known as the Lorenz method, was at the hospital by Dr. Dane. The pathological anatomy of the affection has been studied by Professor Councilman and Dr. Nichols, Dr. Soutter and Dr. Robinson, with reports upon the pathological specimens obtained at the hospital in an epidemic of scarlet fever and diphtheria. Valuable specimens have been placed at the disposition of the staff by the courtesy of Professor Dwight and Dr. W. F. Whitney of the Harvard Medical School, and experiments upon cadavers in regard to the strength of capsular and muscular tissues have been made by members of the Orthopedic Department of the hospital. For the sake of brevity no attempt is made in this report to present the literature of the subject which has, however, been carefully studied.

The conclusions drawn from the experience gained is summarized in the following statement:

TREATMENT BY RECUMBENT TRACTION.

This method, recommended by the French and English surgeons of the middle of the last century and thoroughly applied by Dr. Buckminster Brown in a single case remaining under treatment for several years, was employed at the Children's Hospital in a few cases and in others at their homes. In one of these the treatment was applied with constant care for two years. In two cases strong recumbent traction was applied for several months continuously. In all the cases the treatment proved to be unsatisfactory. Although the limbs were drawn down to the level of the acetabulum and to the plane of its proper position, the shortened muscles being gradually stretched, all attempts at securing the head in its proper position by manipulation, mechanical devices of massage, proved failures. The benefit to be derived from the method is not commensurate with the outlay of time and discomfort demanded, and no permanent advantage was evident.

TREATMENT BY AMBULATORY TRACTION.

This method may be regarded only as possibly of use in preventing temporary shortening of the leg. The apparatus employed was a Thomas knee splint furnished with a traction foot windlass and allowing locomotion with perineal support. This apparatus was worn in one case for a year with no perceptible benefit.

EXCISION.

Excision at the hip has not been performed at the Children's Hospital for congenital dislocation of the hip. In two instances the head of the femur was sawn to alter its shape and correct a deformed condition so that it could be placed into the distorted acetabulum. In both of these cases a relapse occurred.

REDUCTION BY INCISION.

After it became evident that no cure of this deformity could be expected from traction or by the method of operative manipulation proposed by Dr. Post, attention was turned to the operative method practiced at that time by Hoffa, which was based on the supposition that no adequate acetabulum existed, and that it was necessary to create by the curette a socket to retain the replaced head. This operation, performed at the hospital first by Dr. Burrell, was repeated in several cases. One case was operated upon by Professor Hoffa when visiting Boston. No benefit followed these earlier operations. Various incisions were tried and various methods of deepening the acetabulum by drills, gouges,

surgical engines, etc., employed. The defects of the earlier operations done before 1890 lay partly in the inadequate methods used in stretching the adductor and hamstring muscles. After it had been learned that these muscles could be stretched without difficulty, and that in most cases a satisfactory acetabulum existed, the operation of reduction by incision became much less difficult and was performed in a number of cases. In the greater number of cases of treatment by incision the anterior incision was used, separating the gluteus medius from the tensor vaginæ femoris, exposing the capsule which is opened and later freed from its femoral attachments. After the upper part of the capsule was opened a director was passed into the acetabulum, the capsular construction divided and the portion of the capsule covering the acetabulum carefully preserved and placed around the femoral neck. The curette was used to deepen the acetabulum in only a few cases.

The immediate result of this operation was satisfactory in a large number of cases. There was but little shock, sepsis was prevented and as a rule the wound healed without difficulty. In fully half the cases healing by first intention took place. Although the wound was necessarily deep, in no case was serious sepsis encountered. Attempts were made to stitch the capsule around the head to form an artificial cotyloid ligament. This appeared to be successfully done in several instances. In one of the pathological specimens, from a child who died of whooping cough six months after operation by manipulative reduction of one hip with failure and successful incision in the other, it appeared that no satisfactory reduction would have been possible, without incision and division of the capsular neck. Incision presents, however, certain disadvantages. In the older cases the incision is a deep one and requires some time for healing, with great care in asepsis. As the operative measure only attacks the capsule, it is necessary that the shortened adductor and hamstring muscles should be well lengthened before incision. This is easily done in the lighter cases; but in the lighter cases reduction by incision, with the results of present experience, does not seem necessary in ordinary cases. In the severest cases the operation is not an easy one. Deepening the acetabulum by means of a curette or a Doyens instrument for the purpose is not indicated in the younger cases. It appears to have a value in adolescent cases with distorted acetabula, when the head of the femur does not fit into the socket. In the series presented one death from shock followed the operation — a double operation in an infant one and a half years old; an instance of faulty judgment in operating on both hips at once in so young a child.

TENOTOMY, MYOTOMY AND FASCIOTOMY.

Experiments upon cadavera demonstrated that in the reduction resistant structures outside of the capsule are within the easy reach of the surgeon without danger to the patient, requiring comparatively small incisions followed by traction when traction and manipulation alone are not sufficient to overcome them. The strongest group of muscles are the adductors, but these, being straight fibered muscles with but little intra-muscular septa, can be stretched sufficiently in old cases except the long tendon of the adductor magnus attached to the tubercle of the internal condyle. As this can be easily divided the chief resistance in stretching the adductor group where resistance is encountered can in this way be overcome. The hamstring muscles are accessible without difficulty to division if this is needed, and the shortened ileo tibial band and tensor vaginæ femoris; the most resistant portions of the fascia lata can be lengthened safely by a free subcutaneous incision. It would appear, therefore, that in the difficult cases it might be desirable to divide the operation into two sittings; one to overcome all resisting tissues except the capsule, and the second to open this and to effect the reduction.

STITCHING THE CAPSULE.

Various methods were employed in stitching the freed capsule around the reduced head. Handled needles, such as are used in the operation for hernia, were found the most serviceable for the purpose. Catgut was used in all cases.

FEMORAL TWIST AND OSTEOTOMY.

Femoral twists are to be found in almost all cases of congenital dislocation of the hip, as has been pointed out by Nichols. That it exists to a slight degree in normal limbs has been shown by Mikulickz and by Soutter; it constitutes, when present to an extent above 60°, a complication which may prevent a complete functional cure. Osteotomy for the correction of this complication was performed in six cases, this being done at the time of the reduction in three cases and three afterwards. Subtrochanteric osteotomy was performed in four, and in the others the operation was done at the lower end of the femur. In three instances the upper fragment was held in place by means of a steel wire sharpened like a drill and drilled through skin and bone, the ends being secured in a plaster of Paris bandage. In osteotomy at the time of the operation of reduction, fixation of the upper fragment is difficult, and it appears wiser when osteotomy is necessary that it should be deferred until the head has been well secured by cicatrization of the torn tissues in its reduced position. In performing osteotomy various instruments were used; section of the bone by a Gigli saw passed with the aid of a long straight needle to the inner and under side of the lower end of the femur between the nerves, vessels and the bone, appeared to be the most satisfactory way. It must be admitted, however, that until the ultimate functional results after reduction have been more thoroughly studied and the limit of possible correct gait with a twisted femur is better understood, it is impossible to determine the value of osteotomy in this deformity.

RESULTS.

The results of the improved method of operation by incision have proved satisfactory in an increasing number of cases as greater skill was acquired. In the earlier cases the ultimate results were unsatisfactory, but in several of the later cases perfect results with perfect motion and no limp were attained. In only one of the cases, where deepening of the acetabulum by means of a curette was done, did ankylosis follow, and in this the cartilage of the head of the femur was also injured at the time of operation. It is thought that a greater number of cures after incision would have been gained if better methods in after-treatment had been employed. Improved methods of fixation after operation have been developed in the last few years, but during this period the attention of the surgeons has been turned chiefly to development of methods of treatment without incision. It seems probable that in the future treatment by incision will be made more use of than in the past year, in the treatment of the more complicated cases.

TREATMENT OF THE IRREDUCIBLE CASES BY DISSECTION OF THE LAX CAPSULE.

This method was employed in one case, not included in the table, a girl of sixteen, and without marked benefit. The patient recovered from the operation with the limb a little lengthened but without marked improvement in gait.

SUBCUTANEOUS OSTEOTOMY WITHOUT REDUCTION.

This method has not yet been employed at the Children's Hospital.

MANIPULATIVE REDUCTION.

The manipulations employed in reduction of a congenitally dislocated hip have changed since the method was first attempted at the hospital with the Bigelow manipulation for traumatic dislocation by Dr. A. Post (at that time connected with the Children's Hospital) at the City Hospital, and the present procedure may be regarded as an entirely different one. The details of the Paci Lorenz method have been so frequently described that a further account is unnecessary, but as the anatomical relations of the parts are not as generally known, a mention of these may be of interest.

In manipulation reduction it is necessary that the dislocated head (which lies above and slightly behind the vertical plane of the acetabula) be pulled downward; as it nears the rim above the socket it is deflected, if it is not already behind the acetabulum, and must be brought forward in order to enter the socket: when it has been brought down to, though behind the level of, the middle of the acetabulum, it is not difficult, as the posterior acetabular bony rim presents in children a gap (owing to incomplete ossification), to twist the femur and push the head from its posterior position forward into the socket, provided that all contracted tissues are sufficiently stretched.

In order to diminish the resistance of the shortened tissues, viz., adductor, hamstring, psoas, and iliacus muscles, and fascia lata, the reduction is best done with the thigh flexed and abducted.

To prevent the folding in of the lower and anterior wall of the capsule as the head enters the socket, this portion of the capsule must be kept on the stretch as the head is pushed downward and forward. This manipulation is ineffectual unless the shortened muscles are stretched, and also all obstructing portions of the capsule, ligaments, and fascia lata are sufficiently stretched.

This, in manual reduction, is done by using the femur as a lever, the knee and leg as a handle, and the head as a dilating and stretching force.

It is manifest that considerable skill is required, not only to stretch contracted tissues and replace the head without folding the capsule, but also to avoid any unnecessary injury to the tissues, nerves, arteries, or bone, for the surgeon has in his hands an implement of great force.

The objection to the method of reduction by manual manipulation is that not only is there danger of injury, if skill is not employed, but even with the employment of the best skill, in certain cases the pressing of the distorted capsule into the acetabulum in front of the reduced head may take place.

This was clearly shown in a pathological specimen already described in the orthopedic section of the Warren Museum. When the capsular neck is smaller than the head and where this constriction is too resistant to be dilated, folding of the capsule into the socket necessarily follows.

In a case of congenital dislocation of the shoulder, at the Children's Hospital operated on by Dr. Brackett, it was found on cutting down to the joint that it was impossible to prevent some folding in of the capsule on reduction, and it was necessary to open the capsule and remove the fold to secure perfect apposition of the bones of the joint. In how many instances of congenital dislocation of the hip this difficulty is likely to occur, it is impossible to say at present. It was in the belief that this was a frequent complication that reduction by incision was performed at the Children's Hospital in a large number of cases; in a few it appeared from the narrowness of the capsular constriction that no complete reduction was probable without incision; in many, however, it appeared that the capsular constriction was neither so small nor so resistant as to preclude successful reduction by manipulation.

In a specimen of double congenital dislocation in a six-months' fetus in the possession of the Warren Museum, and dissected by Dr. S. Robinson, of the Anatomical Department of the Harvard Medical School, it appears that no capsular constriction is present in the early stage of the deformity. It is probable that the older and more severe the deformity the greater the capsular constriction.

It is claimed that where a folding of the capsule in front of the reduced head is present it will be

gradually worn away by the pressure of the head in the acetabulum in locomotion. Such an assumption, however, is not based upon pathological evidence. Strong, ligamentous tissues, instead of diminishing in thickness, often increase under pressure. It would seem more probable to assume that the folding in of the capsule in front of the reduced head is one of the causes of relapse, which diminish the percentage of cures in the treatment of congenital dislocation of the hip.

The frequency of relapses has been attributed to shallowness of the acetabulum, but both pathological specimens and the experience of those who have cut down on congenitally dislocated hip joints justifies the statement that shallow acetabula are by no means so common as to justify such a higher percentage of relapse. Some other cause must be sought to explain this failure. Imperfect reduction, twists of the femur and defects of the acetabulum are all mentioned, as well as the folding of the capsule in front of the head of the femur in reduction. These, however, are hardly satisfactory explanations in relapsed cases where the head has been definitely reduced into a deep socket, both after reduction by manual manipulation and also after incision where the capsule was definitely not folded in front of the head.

If the six-months' fetus with this deformity is examined it will be found that the head is connected with the socket by a stretched and loose capsule, which permits the position of the head to lie above and behind the acetabulum, or to be placed in any position permitted by the length of the relapsed capsule. The muscular and ligamentous obstructions will be found to be slight, and the acetabulum not much more shallow than that found in fetal conditions of the same age. There is, however, in the fetus afflicted with this deformity, a noticeable absence of the cotyloid ligament. Even in a four or six months' fetus it will be seen that it is the cotyloid ligament which holds the head of the femur in its proper position, and checks a dislocation. It has been claimed that the shallowness of the acetabulum in a congenitally dislocated hip joint is the usual cause of the relapse after successful reduction. An examination of pathological specimens, however, of this deformity and the experience of those who have operated upon the joints by means of open incision with a careful exploration of the acetabulum, justified an assertion that a shallowness of the acetabulum to an extent preventing the retention of the replaced head in the socket is much more rare than would account for the frequency of relapse after successful reduction. If the depth of the acetabulum in a normal child of five is examined, it will be seen that unless a proper cotyloid ligament exists holding the head in its place, dislocation would invariably occur on any extensive motion of the hip. The condition is not unlike that of the shoulder joint of an adult, where a dislocation is prevented not so much by the depth of the glenoid cavity as by the strength of the surrounding tissues. It would appear, therefore, that for successful treatment of cases of congenital dislocation of the hip after reduction, it is necessary that the capsule should fit closely and not loosely around the head.

After reduction, a suitable position for the limb, avoiding improper stretching of the capsule, would be with the center of the head of the femur in contact with the center of the acetabulum, but in the first month following reduction, it is desirable that there be no possibility of pressing the head of the femur against the part of the socket least capable of resisting pressure until the cartilaginous rim which crowns the edge of the socket has been given strength enough at the weakest part of the acetabulum to retain the reduced head. For this reason, it is desirable for a time, until muscular balance has been established, that the muscles which would adduct and press the head of the femur up be placed at a disadvantage, and it is for this reason that the so-called frog position is of service shortly after reduction; but as it is desirable that the portion of the capsule, which should be strong and compact, should not be stretched and thereby weakened, it is essential that as soon as feasible the limb be put into position as near the normal as is possible, in order that no contraction of the capsule or torn ligaments be established which will not permit the necessary free rotation of the trochanter when the limb is placed in its normal position. If these contracted tissues are strong a transposition results if the upper and forward portion of the capsule is lax. The position of the limb after reduction, therefore, must be a matter of judgment as well as the length of time it is maintained. The question is still further complicated by the twist of the femur and the alteration in the femoral neck, which is present in a large number of cases, a complication already referred to.

Investigation has shown that a considerable twist may exist in the femur within the range of normal function, but where an extreme twist is present the danger of abnormality may be said to be reached. It can be expected that the shape of the bone will, by growth, be altered, if complete reduction has been established.

It would appear, therefore, that besides a shallow acetabulum, an infolded capsule and a twisted neck, that a relapse may result from a relaxed capsule which may come from an after treatment with a faulty position, or the too long continuance in such a position as would develop a lax capsule with a faulty contraction of the ileo-femoral tissues. This might occur even if the frequent cause of relapse, a loosely fitting or imperfect plaster cast, is not present.

It is manifestly desirable that the position of the limb (with, if necessary, a change of position) be inspected frequently and that x-ray examinations be made at suitable intervals, in order to correct any tendency to transposition or to relapse. This appears more safe than to trust, without removal of the plaster and examination to the changes which may develop in the socket from use of the limb.

An attempt at the hospital has been made to substitute a removable appliance for a plaster bandage for fixation of a limb after the post-operation plaster of paris bandage has been worn for two months. This will enable the surgeon to inspect the limb with care more frequently than when a plaster bandage is worn. An appliance devised by Dr. J. Adams is on trial for this purpose.

MECHANICAL OPERATIVE STRETCHING.

In all cases of congenital hip reduction the fixation of the pelvis during manipulation is of importance. This is difficult in the older and more resistant cases, and for this reason in the severe cases some form of mechanical stretching is of assistance.

Precision in the use of the applied force is desirable. Where this can be furnished by a proper mechanism it is manifestly of great assistance. There are manifest disadvantages to the surgeon in the employment of any mechanism, but when this can be done greater efficient force can be exerted than can be expected from the hands of a surgeon, even if aided by a number of assistants.

Various mechanical devices have been used at the Children's Hospital. The latest, devised by Mr. Bartlett of Boston, is the most effective. It has been used not only in cases beyond the usual age limit, but also in younger cases of five and six, as there seemed to be less danger of injury to tissues, less ecchymosis when it was applied, than when manual manipulation was used; it is of much use in double cases. As is seen by the table, with its use children come under the class in which treatment is possible at a much older age than has hitherto appeared possible; the danger of fracture is removed, if the mechanism is used intelligently. A full description of this appliance with an explanation of its method of use will be found in the *Journal of Medical Sciences*, December, 1903.

AFTER TREATMENT.

The length of time necessary for after treatment is necessarily a matter of judgment in each case. Where the capsule is well contracted about the head and is firm, it is manifestly necessary that no longer time is needed for fixation than is required for the thorough healing of torn tissues, if a sufficiently deep socket is present. Where too lax capsule is present, or an abnormally twisted femur, it is a question of an operation shortening the capsule, an osteotomy or the retention of the limb for a year in a fixed bandage with the resulting atrophy of tissues. Practice will, it is thought, tend to the shortening rather than the lengthening of the time of after treatment by fixed bandages with operative intervention to meet the above mentioned complications.

Massage and exercises naturally suggest themselves as of use after the removal of fixed bandages to hasten the usefulness of the limb and promote the proper rotation of the limb from the abducted to the normal position, but the natural activity of the child can be expected in time to develop the normal functions of the limb provided the reduction is complete. This has been relied upon in a majority of the cases here reported; the value of systematic massage and regulated gymnastics were demonstrated in two cases, in which they were thoroughly carried out.

ADULT CASES.

A number of adult cases, eleven in all, not included in the table of this report, have applied for treatment, and thereby an opportunity given for observation of the ultimate results of neglected cases. The age ranged from sixty to sixteen. The one of sixty applied for treatment on account of calosities of the foot from an equinus position. She had enjoyed perfect health during life, had been the mother without difficulty of four children. She had several times been obliged to use crutches for periods of from six months to two years, but had recovered so that locomotion necessary to an active life was not difficult, with the occasional use of a cane. She was a large woman of active, uncomplaining temperament.

Cases of feeble strength, even if of slight figure, frequently suffer considerable temporary disability accompanied by muscular pains, considered rheumatic, which may be so severe as to require rest in bed for some time; while some cases of equal size may possess sufficient muscular strength to enable them to walk freely and without difficulty, and with little rocking in their gait. The latter is the exception, however, and the deformity, even in single cases, constitutes a disability of greater or less severity, preventing the active occupations.

In one case, a feeble girl of nineteen with double dislocation, locomotion was impossible without crutches.

Palliative treatment in these cases is of some assistance; massage, the temporary use of crutches, and in cases with severe lordosis the use of a spinal corset is of help. Operative treatment, cutting down upon the joint, deepening the acetabulum, osteotomy, may be of benefit in some of the adult cases, but was not considered in the cases here mentioned.

Forcible manipulation appeared to be of assistance in one case, though it was uncertain how much of the benefit resulted from a mental stimulus and how much to a positive improvement.

As a rule, the condition after treatment, if only partially successful, was better than the usual condition in neglected cases, if the latter are examined in adult life. In childhood, however, the deformity occasions so little disability or discomfort that suitable treatment is often regarded as unnecessary.

In the cases here presented there were but 20 males in the 144 cases. In two the deformity occurred in another member of the family, in one in an older, and in the other in a younger, sister. Of those cut down upon, in one, the head of the

femur was entirely absent; a twist of the femur appeared to be present in a large proportion of the cases; flattening of the head and lowering of the axis of neck occurred in all the older cases, ten or older. Fifteen of the series presented double dislocation.

RESULTS.

The results presented indicate a gratifying continued improvement in treatment from the period when all attempts were fruitless even among younger children. At present, even at an increased age, the percentage of cures is considerable.

It appears to be safe to claim that for all cases, single and double, under ten years of age, either by manipulation by the use of mechanical force, or by reduction by means of incision, a complete reduction is possible, and that relapse can be prevented in more than 60% of the cases. For this, however, careful attention should be paid to after treatment with attention to the following details. It is believed by the writers that a higher percentage and at a higher age limit can be expected, if all methods, including the operative in the more difficult cases, are employed. *First*, that the position of the limb should be such that the development of a firm cotyloid ligament be favored. *Second*, that the position of the limb should be such that the capsule should not be unduly stretched in its forward portion. *Third*, that the position of the limb should be frequently inspected and x-ray examinations be made at frequent intervals.

Double cases are found to present more than twice the difficulty of single ones, and may require repeated operations to secure equally good results on both sides. Although operation by incision without and with curettage of the acetabulum in the complicated cases will be used, in all probability, more commonly than at present in the cases when the simpler methods have failed. The method by forcible manipulation is, in the opinion of the writers, the one to be employed in the usual cases.

From the experience gained at the Children's Hospital it appears also to the writers of this report that stretching the tissues by an efficient machine gives in resistant cases an unquestioned advantage, and permits better reduction, with less risks and in older patients, than if operative manipulation alone is employed.

There is a certain analogy between the treatment of congenital dislocation of the hip and that of club foot. In the simpler cases, manipulation under an anesthetic is sufficient. In the more resistant cases, correction is helped by mechanical aids; in the oldest and complicated cases, incision and osteotomy are often needed to perfect the cure.

The present condition of the treatment of congenital dislocation of the hip may seem to illustrate that the world advances by impossibilities achieved. Twenty years ago, cure of this deformity was considered impossible. This in many cases is now easily accomplished.

CASES OF CONGENITAL DISLOCATION OF THE HIP OPERATED ON AT THE CHILDREN'S HOSPITAL FROM 1884 TO 1896.

By mechanical appliances without operation:

	Date	Age	Sex	Hip	Remarks
1.	Feb. 25, 1884	3	f	not men'd	
2.	Sept. 20, 1887,	6	f	left	
3.	Nov. 3, 1888,	2 5/12	f	double	
4.	Aug. 26, 1889,	9	f	right	
5.	Sept. 25, 1890,	9	m	left	
6.	July 29, 1895,	3 5/12	m	right	*Died*, scarlet fever
7.	Oct. 26, 1895,	6	f	right	
			Total, 7		

By incision and curettage (Hoffa's early operation):

	Date	Age	Sex	Hip	Remarks
1.	Apr. 18, 1891,	11	f	left	
2.	Sept. 16, 1891,	14	f	left	operated upon by Dr. Hoffa
3.	Feb. 13, 1892,	2 5/12	f	left	
4.	Apr. 13, 1892	2 10/12	f	left	*Died*, Intest. Hem.
5.	Nov. 9, 1892,	2 10/12	f	double	
6.	July 12, 1893	4	f	double	
7.	May 7, 1894,	3	f	left	
8.	Oct. 24, 1893,	2 5/12	f	left	
9.	May 4, 1893,	3	f	double	*Died*, diphtheria
10.	Nov. 13, 1893,	8	f	double	*Died*, diphtheria
11.	Sept. 10, 1895,	2	f	left	
12.	Oct. 2, 1895,	?	f	left	
			Total, 12		

By manipulation under anesthetic (Post):

	Date	Age	Sex	Hip	Remarks
1.	Sept. 12, 1884,	2	f	right	*Died*, scarlet fever
2.	Jan. 26, 1889,	9	f	left	
			Total, 2		

Total of all cases from 1884 to 1896, 21, unsuccessful.

At this period the Hospital suffered severely from an epidemic of scarlet fever and, before the introduction of antitoxin, of diphtheria.

CASES OF CONGENITAL DISLOCATION OF THE HIP, OPERATED ON AT THE CHILDREN'S HOSPITAL FROM 1896 TO 1902.

	Date	Age	Sex	Hip	Remarks
By incision (open):					
1.	Mar. 27, 1896,	3	f	left	unknown
2.	Nov. 5, 1896,	7	f	right	success
3.	Jan. 4, 1897,	8	f	double	unsuccessful
4.	June 29, 1897,	8	m	unknown	unknown
5.	July 7, 1897,	3 6/12	f	double	"
6.	Oct. 13, 1897,	3	f	unknown	"
7.	Dec. 10, 1897,	1 6/12	f	double	*Died*, Dec. 12, '97.
8.	Dec. 14, 1897,	5	f	left	unknown
9.	Apr. 5, 1898,	5	f	unknown	"
10.	May 31, 1898,	6	f	"	"
11.	May 2, 1898,	5	f	left	"
12.	May 15, 1898,	3	m	left	"
13.	Oct. 25, 1898,	3 11/12	f	unknown	"
14.	Feb. 8, 1899,	9	f	left	unsuccessful
15.	July 15, 1899,	3 6/12	f	left	"
16.	Sept. 5, 1899,	3	f	left	unknown
17.	Sept. 19, 1899,	2 6/12	f	double	right, success; left, unsuccessful
18.	Oct. 9, 1899,	9	m	left	unsuccessful
19.	Dec. 5, 1899,	3 6/12	f	right	success
20.	Dec. 7, 1899,	2	f	left	"
21.	Dec. 29, 1899,	4	f	left	"
22.	Apr. 3, 1900,	4	f	right	"
23.	June 21, 1900,	2	f	right	success
24.	Jan. 1, 1901,	1 11/12	f	left	unknown
25.	Jan. 22, 1901,	2	f	double	right, unsuccessful; left, success
26.	Apr. 26, 1901,	5	f	right	unknown
27.	Apr. 29, 1901,	12	f	right	"
28.	July 25, 1901,	4	m	left	success
29.	Aug. 15, 1901,	3	f	left	"
30.	Dec. 3, 1901,	4 5/12	f	unknown	unknown
31.	Nov. 26, 1901,	3	f	double	success
32.	Dec. 13, 1901,	2	f	left	unknown

Total 34 { Success 11; Unsuccessful 6; Result unknown 17 }

By manipulation:

	Date	Age	Sex	Hip	Remarks
1.	Mar. 30, 1896,	3	f	left	unknown
2.	May 21, 1896,	3	f	unknown	unknown
3.	Oct. 29, 1896,	7		right	unsuccessful
4.	Apr. 29, 1897,	2	f	double	unknown
5.	June 21, 1897,	12	f	right	unsuccessful
6.	Oct. 27, 1897,	6	f	left	unknown
7.	Nov. 22, 1897,	2	f	left	"
8.	Nov. 24, 1897,	5	f	double	unsuccessful
9.	Apr. 20, 1898,	5	f	right	unknown
10.	July 5, 1898,	8	m	left	success
11.	Jan. 27, 1899,	2	f	right	unknown
12.	Aug. 18, 1899,	3	f	left	"
13.	Sept. 26, 1899,	2	f	left	"
14.	Sept. 26, 1899,	9	f	left	unsuccessful
15.	Mar. 15, 1900,	4	f	right	"

By manipulation.

DATE	AGE	SEX	HIP	REMARKS
16. May 10, 1900	2	f	right	unsuccessful
17. Apr. 9, 1901,	12	f	right	"
18. Apr. 26, 1901,	5	f	left	unknown
19. May 13, 1901	6	f	left	"
20. May 17, 1901,	9	m	right	"

Total 20: Successful 1; Unsuccessful 7; Result unknown 12

Total of all cases from 1896–1902, 54: Success 12; Unsuccessful 13; Result unknown 29

CASES OF CONGENITAL DISLOCATION OF THE HIP OPERATED ON AT THE CHILDREN'S HOSPITAL IN 1902.

DATE	AGE	SEX	HIP	REMARKS
By open incision:				
1. Jan. 30, 1902,	4 6/12	m	left	unsuccessful
2. Feb. 4, 1902,	7	f	right	* "

Total 2: Success 0; Unsuccessful 2

DATE	AGE	SEX	HIP	REMARKS
By manipulation:				
1. June 17, 1902,	7	f	left	*success
2. July 10, 1902,	4	m	right	* "
3. July 29, 1902,	6	f	right	transposition
4. Aug. 15, 1902,	7	f	left	* "
5. Aug. 15, 1902,	3 1/2	f	right	*success
6. Aug. 19, 1902,	2 11/12	f	left	* "
7. Oct. 4, 1902,	5	f	left	transposition
8. Oct. 7, 1902,	2 6/12	f	left	*success
9. Nov. 20, 1902,	3	f	left	*transposition
Cases operated upon by Professor Lorenz:				
10. Dec. 22, 1902,	3	f	left	*transposition
11. Dec. 22, 1902	7	f	right	* "
12. Dec. 22, 1902,	4	f	double	*relapse
13. Dec. 23, 1902,	3 6/12	f	left	*ant. transposition
14. Dec. 23, 1902,	9 1/2	m	left	*unsuccessful
15. Dec. 23, 1902,	3	f	left	*success
16. Dec. 26, 1902,	9	f	double	*unsuccessful
17. Dec. 26, 1902	5	f	left	*success
18. Dec. 26, 1902,	3	f	right	*relapse
19. Dec. 26, 1902	11 1/2	f	right	*success
20. Dec. 27, 1902,	2 1/2	m	double	*relapse

Total 20: Success 8; Unsuccessful 2; Relapse 3; Amt. transposition 7

Total of all cases operated on in 1902:

Total 22: Success 8; Unsuccessful 4; Relapse 3; Ant. transposition 7

CASES OF CONGENITAL DISLOCATION OF THE HIP OPERATED ON AT THE CHILDREN'S HOSPITAL IN 1903.

DATE	AGE	SEX	HIP	REMARKS
By mechanical stretching and manipulation:				
1. Mar. 12, 1903,	2	f	right	*transposition
2. Mar. 24, 1903,	12	f	right	*success
3. Mar. 28, 1903,	4 5/6	f	left	* "
4. Apr. 4, 1903,	6	f	right	* "
5. May 4, 1903,	8	f	left	* "
6. May 30, 1903,	8	m	right	*transposition
7. June 4, 1903,	9	f	left	* "
8. June 9, 1903,	4	m	right	*ant. transposition
9. June 18, 1903,	9	f	left	*success
10. June 27, 1903,	9	f	right	*transposition
11. July 9, 1903,	4	f	double	*success
12. July 24, 1903,	9	m	left	* "
13. July 28, 1903,	13	m	right	unsuccessful
14. Aug. 22, 1903,	12	f	left	* "
15. Sept. 3, 1903,	5	f	right	success
16. Sept. 10, 1903,	12	f	left	unsuccessful
17. Sept. 19, 1903,	5	f	double	success
18. Oct. 6, 1903,	6	f	left	* "
19. Oct. 6, 1903,	4	m	left	"
20 Nov. 7, 1903,	8	m	left	"
21. Nov. 13, 1903,	13	f	left	* "
22. Nov. 14, 1903,	4	f	right	*success
23. Dec. 31, 1903,	10	f	double	* "
24. Jan. 5, 1904,	6	f	double	* "

Total 24: Success 16; Unsuccessful 3; Transposition 5

By manipulation:

DATE	AGE	SEX	HIP	REMARKS
1. Jan. 6, 1903,	6	m	right	*success
2. Jan. 13, 1903,	5	f	right	* "
3. Feb. 26, 1903,	5 7/12	f	left	transposition
4. Mar. 17, 1903,	2	f	left	*success
5. Sept. 3, 1903,	4	f	double	* "
By manipulation:				
6. Sept. 26, 1903,	2	f	left	success
7. Oct. 27, 1903,	2	f	right	"
8. Oct. 29, 1903,	1 1/12	f	left	* "

Total 8: Success 6; Unsuccessful 1; Transposition 1

By open incision:

DATE	AGE	SEX	HIP	REMARKS
1. July 23, 1903,	13	m	right	unsuccessful

Total 1: Unsuccessful 1

Total of all cases operated on in 1903:

Total 33: Success 22; Unsuccessful 5; Transposition 6

Note. — The ultimate condition was verified by a skiagram in those marked with an *.

II.

ADDENDUM.

BY E. H. BRADFORD, M.D.

RECOGNIZING the difficulty of determining with definiteness an absolute cure in many of the treated cases of congenital dislocation of the hip, the staff of the hospital collected a number of children who had been treated in the previous two years and demonstrated their conditions with their skiagraphic record at a special meeting of the Boston Society of Medical Improvement, which was held at the Children's Hospital and to which the leading physicians and surgeons of the city were invited. A committee of three was appointed by the president of the Society for Medical Improvement to examine personally the cases shown and report upon their condition. It was stipulated that the committee appointed should be made up of surgeons not connected with the Children's Hospital. The committee was composed of Dr. D. W. Cheever, Emeritus Professor of Surgery, Harvard Medical School; Dr. C. B. Porter, Professor of Clinical Surgery, Harvard Medical School; Dr. C. F. Painter, Professor of Orthopedic Surgery, Tufts Medical School and Orthopedic Surgeon to the Carney Hospital, who submit the accompanying report.

To prevent undue publicity the names of the children operated upon are not given in the published hospital report; these were, however, furnished to the members of the committee and the results of their examination are given in the accompanying committee's report. This report differs from the hospital report in two cases which were regarded by the committee as having slipped into an anterior position since their examination at the hospital.

In a majority of cases in the hospital table a sufficient time had elapsed since the removal of the plaster to justify an opinion as to the probability of a permanent cure, but in some of those examined by the committee the plaster bandage had been removed only a short time.

It is desirable to examine the effect of growth upon cases of congenital hip for some years after successful treatment and after the so-called functional cure with anterior transposition of the head, and it is proposed to re-examine in a year from the present date as many as possible of the cases included in the hospital tables.

Accompanying this paper is presented the photograph of a patient photographed when four

years of age and later when twenty-six. No treatment was attempted and the case may be considered as showing the effect of growth upon the figure. The patient was able to walk about freely and with but little side sway, and suffered little inconvenience except that occasioned by the shortness of stature. The patient was slight in figure. Another photograph submitted indicates a similar untreated case, nineteen years of age, resulting in great disability, the patient being unable to walk without crutches. One of the cases operated upon by Professor Lorenz (No. 11 of the table), and reported as resulting in a transposition, was anesthetized six months later and the limb put in an improved position. It is believed that an anatomical reduction and a permanent cure has resulted, from a statement which has been received in writing; but as the case had not been personally examined at the time of writing the report, the rule was followed adopted for all cases; viz., that the statement in the hospital records is to be published unless corrected by later examination.

It has been thought inexpedient to publish all the skiagrams of the cases in this report, some sixty in number, but illustrative skiagrams are presented to indicate the standard of results as classified by the committee.

III.

REPORT OF THE COMMITTEE OF THE BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

BY DAVID W. CHEEVER, M.D.; C. B. PORTER, M.D.; CHARLES F. PAINTER, M.D., BOSTON.

THE committee appointed at a special meeting of the Boston Society for Medical Improvement held Jan. 7, 1904, to consider the report of the staff of the Children's Hospital upon the cases of congenital dislocation of the hip treated at that institution, submit the following statement:

The cases, the subject of this report, are those operated upon during the eighteen months just preceding the date of this meeting, which have been operated on long enough to justify the removal of retentive dressings, and which were present for the examination of the committee.

These cases were examined individually and separately by at least two members of your committee, and subsequently the evidence of reduction as afforded by x-ray examinations was submitted for separate study. The examination of the x-rays was made independently of the results of the clinical examinations previously recorded, so as to render the report, as far as possible, an unbiased one.

Twenty-two cases were submitted to us for examination. Of these, one was not seen by any of the committee, and it is their opinion that the x-ray evidence was not sufficient to establish a diagnosis of the position of the femoral head. We thus have 21 cases. Ten were apparently reduced, the head being felt in the normal position, and the function of the limb, as evidenced by passive motion, being good; 9 cases were not reduced, the head of the bone being beneath the anterior superior spine and external to the femoral vessels. In these the passive motion was not as good. Two were still posterior dislocations upon the dorsum of the ilium. The active motion of the 21 cases is not reported, because it did not seem proper at this time to enter into that feature of the results.

In studying these cases your committee has laid most stress upon the results of the physical examination and comparatively little upon the x-ray findings. In some cases the x-rays submitted were taken through the plaster dressings, with the legs in the "frog" position, in which they were left after the attempted reduction. Obviously, this was not to be the position when function was restored, and it might readily be that when this abnormal position was overcome the head would no longer seem to be in the acetabulum. In the one case clinically examined by only one of the committee, his physical examination placed the case among the "reduced" list, whereas the interpretation of the x-ray would seem to negative this opinion. The case is classified, however, among the "reduced" ones.

RESULTS AS REPORTED BY THE COMMITTEE OF THE SOCIETY FOR MEDICAL IMPROVEMENT.

Patients' Initials.	In the opinion of the Committee.	According to the Hospital Record.
R. F., Not Seen	X-Ray, negative	Unreduced
E. R.	Reduced	Reduced
G. C.	Ant. Post.	Ant. Post.
R. N	Reduced	Reduced
A. T	"	"
A. C.	"	"
A. L.	"	"
H. H.	"	"
E. C.	"	"
A. H.	"	"
H. B.	"	"
M. O.	"	"
M. G.	Ant. Post.	Ant. Post.
M. L.	"	"
C. D.	"	Reduced
M. R.	"	Ant. Post.
H. S.	"	"
B. S.	"	Reduced
S. R.	Dislocated	Dislocated
A. H.	"	"

A METEOROLOGICAL STUDY OF THE WINTER OF 1903–04.*

BY CARROLL E. EDSON, A.M., M.D., DENVER, COL.

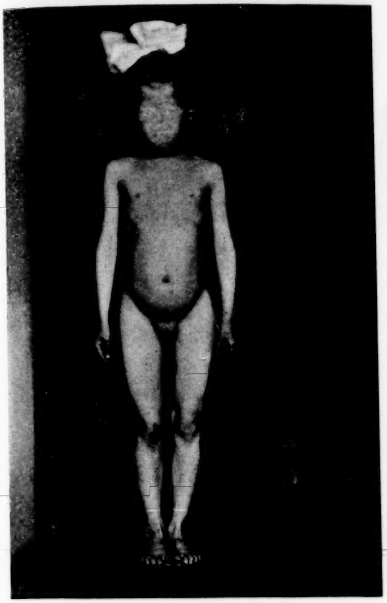
THE winter of 1903–04 was an interesting one from the standpoint of its weather, and some of its meteorological data teach a lesson of sufficient value, I believe, to present to the society.

The collation and comparison of meteorologic statistics involve frequently a kind and amount of labor for which many persons have no inclination, but the results of such study may be tabulated or reduced to graphic form so as to make easy the lesson hidden in the reports of the Weather Bureau.

I have been led to write this paper for two reasons:

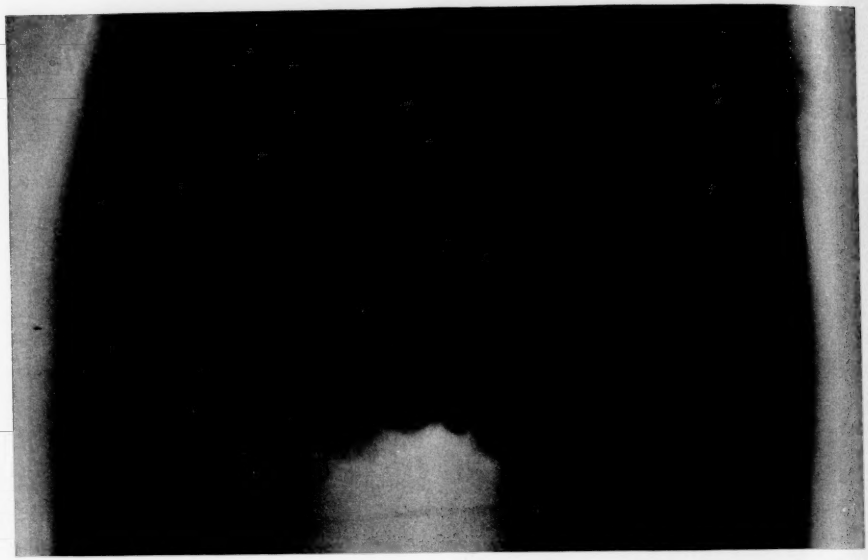
First. — The winter has been sufficiently pro-

* Read at the meeting of The American Climatological Association, Philadelphia, June 2–4, 1904.

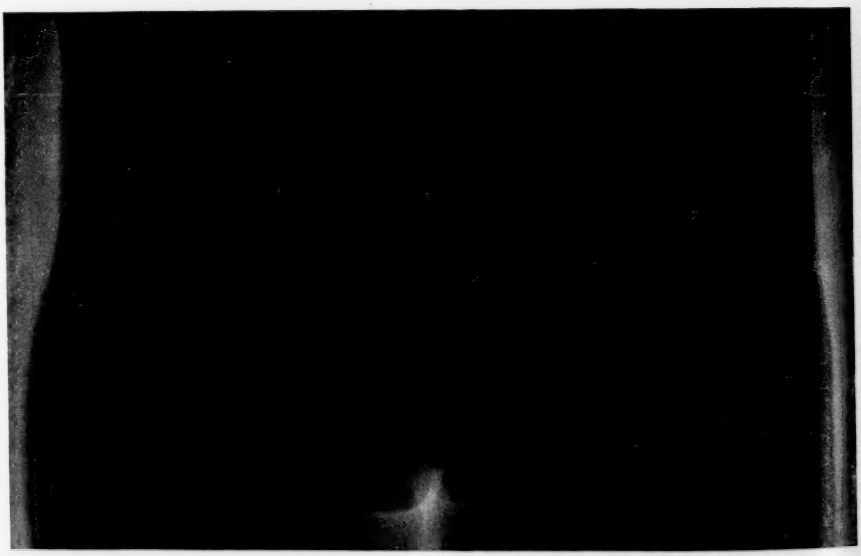


S. 6½ years old. Congenital dislocation left hip. One year after reduction by operative mechanical stretching and manipulation.

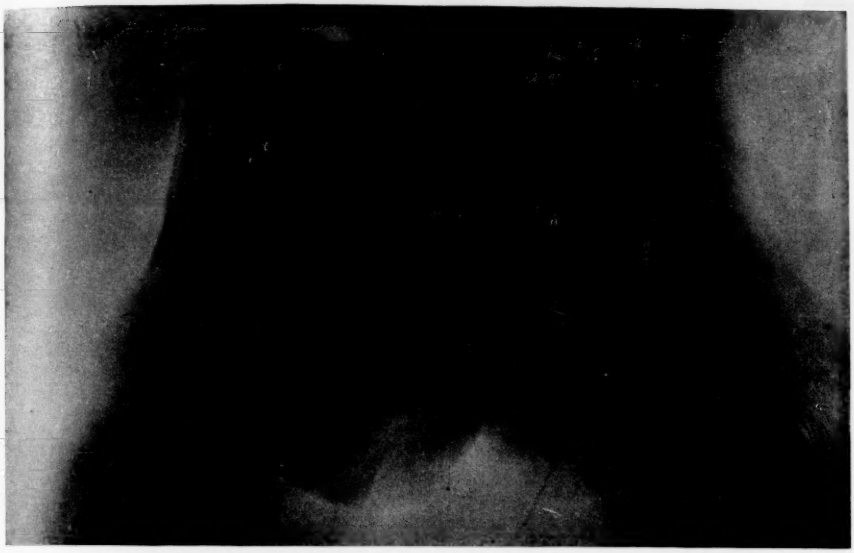
S. Showing strength of reduced hip by the Trendelenburg test. Motion and gait of reduced hip normal.



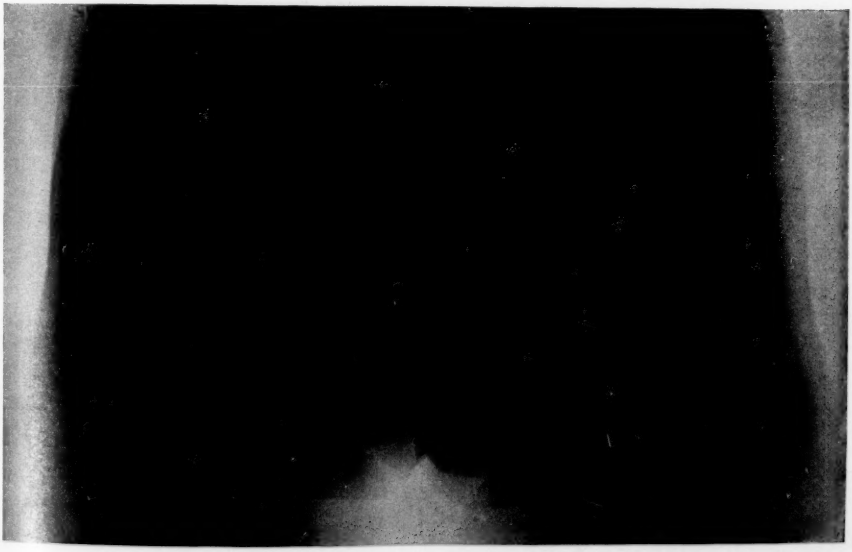
S. Skiagram one year after reduction.



T. Child of five. Skiagram taken two years after reduction by incision. Right congenital dislocation of hip. Motion and gait normal.

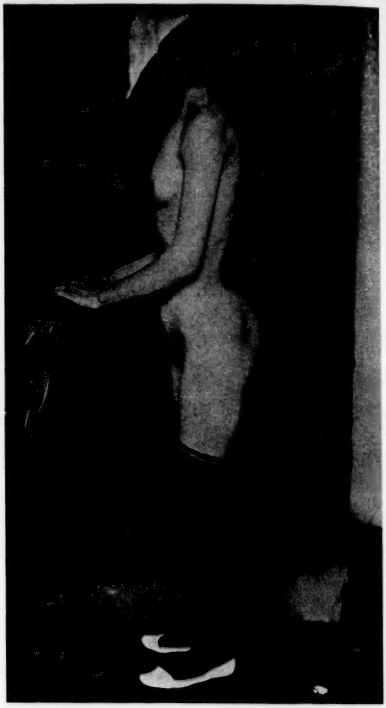


F. Double congenital dislocation, child of three. Skiagram taken three months after reduction by incision.

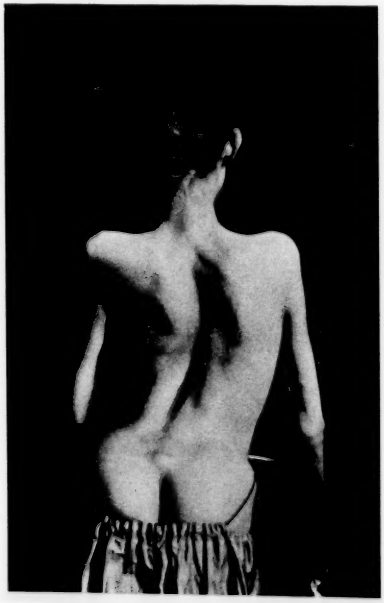


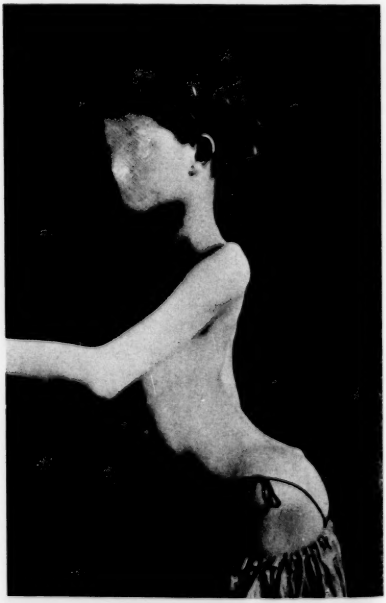
F. Same case. Skiagram taken six months later, showing anterior transposition of heads of femur.

D. Double congenital dislocation of hip. Child age four. Untreated.



D. Same patient age 28. Untreated case. Patient able to walk actively with little limp.





H. Untreated case double congenital dislocation. Unable to walk without crutches.

nounced in some of its characteristics, especially in the East, to attract the attention of those, even, whose work does not ordinarily lead to study of meteorologic conditions. To compare the recorded statistics of such a winter with the data of the mean weather conditions as meteorologically expressed, emphasizes better than any other way what must be read into these reports as published in climatic works, in order to obtain the clear picture of the actual weather of a given place. To learn what the actual figures of such a winter as the past are, gives the student a live measure for his general use.

Second. — The comparative study of the weather in various parts of the country during this winter teaches a lesson of great therapeutic value, to which I wish to call your attention.

I have selected for this study only the period of the winter — from Nov. 1, 1903, to April 1, 1904 — a period of five months or 152 days, and have taken the six cities of Boston, New York, Philadelphia, Buffalo, Chicago and Denver.

The nearness to each other of New York and Philadelphia makes their meteorologic conditions very similar, but the detailed data show some interesting differences.

My statistics are taken from the monthly reports of the United States Weather Bureau and are, therefore, comparable, being taken accurately under similar conditions of observation and time. So far, therefore, as material is concerned, I have nothing new to offer, but wish simply to point out what is already contained in apparently uninteresting columns of figures. As far as possible, I have reduced my findings to a graphic form, as being time-saving and most demonstrative of the relative conditions in the several cities. The tables on which these diagrams are based and which accompany the paper, I will refrain from reading.

Temperature. — The mean temperature of the several months and the mean temperature of the corresponding month for the period of the last thirty-three years, are shown in Table A.

Table B gives the average daily excess or deficiency of temperature over the mean of thirty-three years.

TABLE B. — AVERAGE DAILY EXCESS (+) OR DEFICIENCY (—) OF TEMPERATURE OVER MEAN OF 33 YEARS.

	Boston.	New York.	Philadelphia.	Buffalo.	Chicago.	Denver.
Nov.	—1.0	—2.4	—2.3	—1.0	—2.4	+1.8
Dec.	—2.0	—4.0	—3.8	—4.0	—8.9	+3.9
Jan.	—5.8	—6.2	—6.1	—6.0	—6.0	+1.8
Feb.	—5.5	—6.0	—5.8	—7.0	—8.5	+8.3
Mar.	+0.2	—1.2	—0.2	+1.0	+0.7	+3.6

It will be seen that Boston had a daily average lower temperature than normal of from 1° to 5.8°, save in March, when it was a small fraction, 0.2°, over the mean. New York was below, all the time, from 1.2° to 6.2° daily; Philadelphia, from 0.2° to 6.1° colder; Buffalo, from 1° to 7°, save in March, when it was 1° above the average. Chicago, also, was a fraction above the mean in March, but showed, till then, a daily average deficiency of from 2.4° to 8.9°. Denver, on the other hand, experienced a winter steadily warmer than usual by a daily average of from 1.8° to 8.3°.

The table (C) which follows shows the mean maximum and mean minimum temperatures and the actual highest and lowest. A study of these tables shows the general range of the thermometer.

It will be seen that the winter set in early in Boston, New York, Philadelphia, Buffalo and Chicago, continued late, and was colder than usual. Calculating the number of days in each month on which the temperature was above or below the mean of the months, I found that the low mean of the months was not the result of a few excessively cold days, as sometimes occurs, but that the whole winter, in the East, was steadily colder than usual. In Denver, it was, throughout, warmer.

Going a little into detail, Table D gives the number of days on which the maximum temperature was at freezing or below 32°.

The maximum temperatures are the most important to the physician, as the minimum tem-

TABLE A. — MEAN TEMPERATURES.

	Boston.		New York.		Philadelphia.		Buffalo.		Chicago.		Denver.	
Av. of 33 yrs.		*1903–4*	*33 yrs.*	*1903–4*	*33 yrs.*	*1903–4*	*33 yrs.*	*1903–4*	*33 yrs.*	*1903–4*	*33 yrs.*	*1903–4*
November	41	40	44	42	45	42.4	39	37.6	38	36.4	39.5	41.2
December	31	28.9	34	30	36	31.7	29	25.5	29	20.1	32	36.3
January	27	21.6	30	24	32	25.8	25	19.2	24	17.8	29	31
February	28	22.6	31	25	33	27.4	24	16.9	26	17.2	32	40.2
March	34	34.6	38	36	40	39.4	31	32.4	34	35.2	39	42.5

TABLE C. — MEAN MAXIMUM AND MEAN MINIMUM TEMPERATURES.

	Boston.		New York.		Philadelphia.		Buffalo.		Chicago.		Denver.	
	Max.	*Min.*	*Max.*	*Min.*	*Max.*	*Min.*	*Max.*	*Min.*	*Max.*	*Min.*	*Max.*	*Min.*
November	47	33	48	35	49.8	35.2	42.8	32.4	42.9	30	54.6	27.6
December	36.6	21.3	36	24	38.2	25.3	31.1	19.7	27.5	12.6	49.4	23.2
January	29	14.1	30	18	32.4	19.5	26	12.4	24.4	11	43.3	18.8
February	31.3	13.8	33	17	35.2	19.2	24.2	9.4	24.4	9.9	53.8	26.6
March	41.9	27.2	43	30	46.5	32.3	39.1	25.7	41.9	28.1	56	29

ACTUAL HIGHEST AND LOWEST.

	Boston.		New York.		Philadelphia.		Buffalo.		Chicago.		Denver.	
	H.	*L.*	*H.*	*L.*	*H.*	*L.*	*H.*	*L.*	*H.*	*L.*	*H.*	*L.*
November	74	15	70	17	72	18	63	14	63	12	74	3
December	55	2	52	7	53	10	52	3	40	—13	63	3
January	46	—6	55	—4	56	—2	54	—4	39	—15	64	— 2
February	49	—1	53	1	57	5	50	—8	53	—6	73	12
March	70	8	64	17	68	17	60	10	65	13	71	4

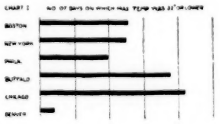
peratures occur at night, when his patient is in bed and but little affected by them, while the maximum temperature determines, to a considerable degree, the length and comfort of the invalid's out-door stay.

TABLE D. — NUMBER OF DAYS WITH MAXIMUM TEMPERATURE 32° OR LOWER.

	BOSTON.	NEW YORK.	PHILADELPHIA.	BUFFALO.	CHICAGO.	DENVER.
Nov.	5	5	4	9	10	2
Dec.	11	9	7	16	21	2
Jan.	18	17	15	20	24	4
Feb.	17	17	11	20	20	0
Mar.	4	2	2	9	7	0
Tot'l,	55	50	39	74	82	8

From the table it will be seen that, of the 152 days studied, Boston had 55 more than one third below freezing all day; New York had 50, or nearly one third of them all, below freezing; Philadelphia 39, about one fourth; Buffalo 74, or nearly one half; Chicago 82, over one half; and Denver but 8, or only one nineteenth.

This relative number of cold days is most clearly appreciated in Chart I.



Of the days when the maximum temperature was 20° or lower, Boston had 9; New York 9; Philadelphia 6; Buffalo 26; Chicago 30; Denver none.

Boston had two days below 10° all day; Buffalo 7; Chicago 7.

Buffalo had one day with a maximum of zero, and Chicago one day with a maximum below zero.

These few days of very low temperature, while showing an unusual freedom from "cold waves," emphasize the conclusion stated above, — that the great deficiency in the mean temperature was due to continuous, steady cold all winter, and not to intermittent spells of excessive cold. There is an importance in this for the out-door life of an invalid. With a low mean temperature, he may still be out much of the time, if the mean is the result of a few excessive cold periods, for, during such cold days, the temporary housing necessitated is of comparatively little harm, while if the low mean is the result of a continuous cold, it may cause a sensitive patient to lose a large portion of his needed out-door stay.

Chart II, showing the mean temperature by months, with the comparative range of the mean maximum and mean minimum readings, discloses the fact that during January the mean minimum temperature in Denver was above the mean of Buffalo and Chicago, and in February higher than the mean maximum of those cities. In other words, in February it was warmer in the coldest part of the night in Denver than it was in the warmest part of the day in Buffalo or Chicago.

Relative Humidity. — Closely associated with the temperature of the air in affecting the comfort is the humidity, the discomfort of both extremes, heat or cold, being increased by a high relative humidity.

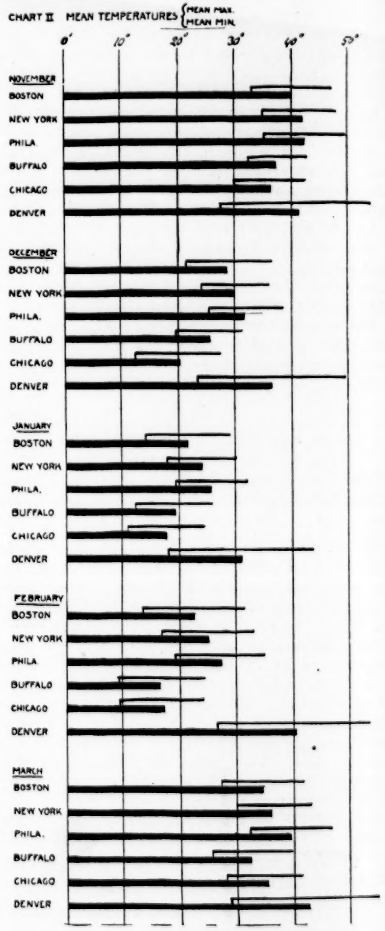


Table E gives the mean relative humidity in the several cities, at morning and night.

Starting with the humidity of the early morning, before the air is warmed by the sun, the relative higher or lower figures at night give some index as to the degree of rawness during the day. If the amount of moisture, actual, remains the same, as the air warms the relative humidity will fall. Accordingly, if the relative humidity rises as the day goes on (and the air is warmed) and is higher at night, there has been an actual increase

in the amount of moisture or else a fall in the temperature during the day. In either case, cold and chilly rawness has been a feature of the day.

Studying Table E with this in view, it will be seen that there is a comparatively small drop in the relative humidity at night in most of the

Of the 152 days studied, Boston had 55 wholly cloudy days; New York 58; Philadelphia 58; Buffalo 112; Chicago 66; and Denver 14.

Of fully clear days, Boston had 67; New York 65; Philadelphia 59; Buffalo only 9; Chicago 31; and Denver 71.

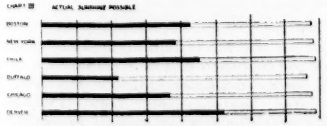
Table E. — Mean Relative Humidity.

	Boston.		New York.		Philadelphia.		Buffalo.		Chicago.		Denver.	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
November	68	61	70.5	60.6	69.3	60.1	74.5	68.2	77	65	69	55
December	72	66	72.2	63.5	68.1	62.2	75	76.2	88	80	62	60
January	78	76	69.8	72.7	75	70.4	76.4	78.1	90	80	69	58
February	72	68	63	59.6	69.6	63.2	69.9	72.3	87	79	59	43
March	68	67	74.7	64.1	74.4	64.7	76.6	75.6	83	80	66	52

lines, and that often there is an actual rise. The extremely high humidity in both Chicago and Buffalo, and the frequent higher night humidity in the latter city, are to be noted. Boston showed an average higher humidity in the morning over the evening of 4°, New York of 8°, save in January, when the humidity was higher at night by 2.9°; Philadelphia of 7°, Chicago of 8°, Denver of 11°; while Buffalo has the damp, chilly record of being higher at night in December, January and February — the cold months — by an average of 1.7°; and in November and March a morning higher humidity of 3.7°, or averaging for the whole winter a higher morning humidity of only 0.4°.

Sunshine. — The total number of hours of actual sunshine and the percentage of the total possible are given in Table F for the winter and by months; and the percentage for the whole period is shown in Chart III.

Table F. — Sunshine, Nov., 1903, to April, 1904.

	Boston.	New York.	Philadelphia	Buffalo.	Chicago.	Denver.
Actual hours	860	766	906	439	733	1,034
Possible hours	1,554	1,564	1,575	1,530	1,554	1,575
Per cent obtained,	55.3	48.9	57.4	28.6	47.1	65.6
Sunshine Per Cent Obtained by Months.						
Nov.	61.0	58.9	68.0	40	56.2	64
Dec.	58.9	50.0	60.6	20	47.0	77
Jan.	51.1	43.6	53.4	32	43.0	67
Feb.	53.2	57.0	61.4	20	46.7	68
Mar.	53.1	37.7	46.3	33	43.7	56

Not only the total percentage of sunshine, but its distribution, is of importance in studying the relative availability of out-door life. For the effect of sunshine and cloud is not only that upon the temperature and moisture, but a positive one upon the mental well-being of a patient.

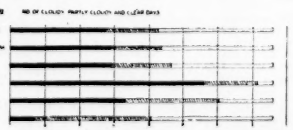
The study of the proportion of sunshine and cloud for the last winter is interesting.

Table G shows the number of wholly cloudy, partly cloudy and clear days in each month, and the total number of days on which 0.01 of an inch of precipitation fell.

Table G. — Number of Cloudy, Partly Cloudy and Clear Days.

	Boston.	New York.	Philadelphia.	Buffalo.	Chicago.	Denver.
Clear.						
Nov.	15	17	12	3	10	15
Dec.	16	10	16	0	6	22
Jan.	12	14	12	1	7	15
Feb.	12	14	10	2	5	12
Mar.	12	10	9	3	3	7
Tot'l,	67	65	59	9	31	71
Partly Cloudy.						
Nov.	3	5	12	7	11	12
Dec.	3	10	5	4	14	8
Jan.	6	3	4	6	9	13
Feb.	5	6	7	5	10	16
Mar.	13	5	7	9	11	18
Tot'l,	30	29	35	31	55	67
Cloudy.						
Nov.	12	8	6	20	9	3
Dec.	12	11	10	27	11	1
Jan.	13	14	15	24	15	3
Feb.	12	9	12	22	14	1
Mar.	6	16	15	19	17	6
Tot'l,	55	58	58	112	66	14
Total no. of days with 0.01 precip.	60	50	46	106	61	18

For continued pall of cloud, Buffalo holds the record; out of 152 days, only 9 sunny days.

Chart IV shows the relative number of days of cloudy, partly cloudy and clear weather.

The depressing effect of continued cloudy weather, without any sunshine, is very great, and in winter, especially, long absence of sunshine greatly hinders out-door life. A study, therefore, of the distribution and duration of the wholly cloudy days becomes of some interest.

I have reckoned the number of times there was a period of total cloudiness of three consecutive days, and find that Boston had 2 periods of four days, 4 of three days and, in addition, 9 periods of two days; New York had 2 periods of five days, 1 of four days, 1 of three days and 10 of two days; Philadelphia had 1 period of five days, 2 of four, 4 of three and also 7 of two days; Buffalo had the unenviable record of 1 period of twelve consecutive wholly cloudy days,

1 of eleven, 1 of eight, 3 of seven, 2 of six, 3 of five, 2 of four, 4 of three and also 3 of two days; Chicago had 2 of six days, 1 of five, 1 of four, 3 of three and 8 of two days; Denver had no period of two days, even, of consecutive total cloudiness.

None of the periods above stated are included in any other, and they are all apart from partly cloudy days, being each of them a series of consecutive totally cloudy days.

Precipitation. — The past winter has been one of marked snowfall throughout the East, the general impression being of an unusual amount. On studying the records, however, it will be found that the precipitation was in general below the mean of the last thirty-four years. Table H gives the precipitation by months, and in small figures in a parallel column the mean for that month.

side by side, each feature compared with the other, if we are to obtain a true picture of the conditions actually present. To read the totals of any column alone will almost necessarily give a wrong idea, even of that factor, but there must be juxtaposition and constant reference; the sunshine, the temperature, the precipitation, must be read together, if they are to mean anything, and give a clear picture of the actual conditions.

Wind. — The total wind movement each month is shown in Table K, and in the small column the highest velocity during any five-minute record.

It will be more easily appreciated by reducing the total wind movement to a proportion in smaller figures, which gives Boston 84, New York 115, Philadelphia 79, Buffalo 128, Chicago 127, Denver 66, as shown in Chart VI.

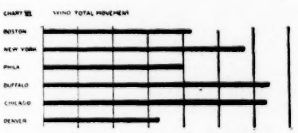


TABLE H. — PRECIPITATION IN INCHES.

	Boston.		New York.		Philadelphia.		Buffalo.		Chicago.		Denver.	
	Av. of 33 yrs.	*1903–4*	*Av. of 33 yrs.*	*1903–4*	*Av. of 33 yrs.*	*1903–4*	*Av. of 33 yrs.*	*1903–4*	*Av. of 33 yrs.*	*1903–4*	*Av. of 33 yrs.*	*1903–4*
November	4.23	1.48	3.00	0.90	3.19	1.03	3.44	1.36	2.59	0.34	.54	.07
December	3.28	2.57	3.37	2.81	2.86	3.29	3.39	3.07	2.11	2.28	.65	.23
January	3.81	4.80	3.80	3.38	3.28	3.14	3.21	4.77	2.05	2.25	.48	.04
February	3.51	2.49	3.84	2.18	3.39	2.21	2.99	4.32	2.30	1.71	.50	.17
March	4.21	2.43	4.05	3.44	3.40	3.24	2.07	3.51	2.59	4.57	.91	.94
Total	19.04	13.77	18.66	12.71	16.28	12.91	15.10	17.03	11.64	11.15	3.08	1.45

TABLE K. — WIND.

Total miles per month and highest recorded velocity for 5 minutes.

	Boston.		New York.		Philadelphia.		Buffalo.		Chicago.		Denver.	
	Total.	*H.*	*Total.*	*H.*	*Total.*	*H.*	*Total.*	*H.*	*Total.*	*H.*	*Total.*	*H.*
November	7,108	33	9,881	59	7,298	29	11,614	62	12,200	69	5,698	45
December	9,555	46	12,449	62	9,043	46	15,621	65	13,240	52	6,712	54
January	8,583	37	11,522	54	8,570	36	12,468	58	12,614	54	6,891	40
February	8,558	40	12,393	62	8,312	35	12,550	66	12,998	48	6,615	51
March	8,617	39	11,519	65	6,681	31	11,970	60	12,761	52	7,360	52
Total	42,421		57,764		39,904		64,223		63,813		33,276	
Av. mo. movement	8,484		11,553		7,981		12,845		12,763		6,655	

It will be seen that Buffalo alone had more than the usual precipitation. Chart V makes the comparison easy, the small perpendicular lines addressed by an arrow indicating the point of mean precipitation beyond that of this winter.

That a less precipitation than usual should give rise to a general impression of an excess is due to the fact that, owing to the cold weather, the low temperature, the precipitation was as snow rather than rain, and, owing to the persistent low temperature, this snow did not melt as usual from time to time in periods of thaw, but remained on the ground as snow and ice, encumbering the streets and making progress difficult. A slight difference in the mean temperature would have made a great difference in the impression of the winter.

No better instance could be selected to show the importance of studying meteorological data

In reading the tables, too, it must be remembered that the air is lighter at Denver than in any of the seaboard or low level cities.

The winter just passed may be described, then, as regards Boston, New York, Philadelphia, Buffalo and Chicago, as setting in earlier than usual, lasting longer and being somewhat colder than the mean, this coldness, however, being due not to the depressing effect of cold waves so much as to a continuous, steady cold, without much let-up. For this reason the precipitation though less than usual, save in Buffalo, was more noticeable, coming as snow and remaining frozen on the ground. The cloudiness, especially in Buffalo, was extreme.

In Denver, on the other hand, the winter was one of unusual mildness, small precipitation, very even temperature and abundant sunny clear days.

The therapeutic lesson to which I wish to call attention by the foregoing meteorologic study is that of the importance and advantage of selecting the climate in the care of pulmonary tuberculosis.

The present position of appreciation of the importance of fresh air, sunshine and nutrition in the treatment of phthisis has been slowly attained. The progress from drugs and palliation to the insistence on control of the simple, hygienic living, has been by stages. As in all lines of human thought, so in therapy, the tendency has been to see but one point at a time, — to lay stress on one factor to the neglect of others. In the general advance of our knowledge of phthisis and its care, one stage was marked by the great emphasis laid on climate, and we heard only of the climatic treatment, as distinct from the medical, as if climate was in itself an entity and a specific force.

A frequent result of this narrowness and separation of ideas was that patients were sent away for a "change of climate" to a supposedly "proper climate" away from home and allowed to shift for themselves, neglecting all details of control and hygienic living, placing such matters in the intelligent care of the climate. Much evil resulted from this course, as might have been expected. Many and marvelous cures were often made. Of the untold failures, many might have been avoided.

Gradually, as the appreciation of the need for close oversight and control of the patient became more keen, it was found that the discipline of a sanatorium was of great help. Patients were noted to recover their health at home with their own native "weather," without the aid of "climate," once more investing climate with an air of specific entity.

Then we heard for a while of "the sanatorium treatment" as distinct from the medicinal or the climatic, — another stage in our advance, but still marked by the old "one idea" tendency. The advantage which this sanatorium control brought about by its close oversight of all the details of life, food, outdoor exercise and so on, was seen in the cures resulting in many "closed institutions." Our present better knowledge of the disease and its proper management by control of all details of hygienic living out of doors is due, in part, to such study as was more possible in an institution.

As a result, there has been lately considerable remark by various writers that "climatic stations" are of no great importance; that food, sunlight and fresh air are all that are needed. "Out of doors is all — anywhere is good enough." Again the old tendency to see but one thing at a time! But is it true?

Granted that the important factors, as we now know them, in the care of pulmonary tuberculosis are, after control of the patient and his living, food, fresh air, sunshine, an outdoor life — are these latter helps the same everywhere? By no means, and even the brief comparison of the winter just made must prove that some places offer more opportunity to the invalid to live comfortably out of doors than do others.

Leaving, for the present, wholly out of question any especial advantage of high elevation upon the patient or his disease,— taking only the elements of the weather as just discussed,— is there no choice? If the patient is to have the closest control, the most nutritious food in the greatest abundance, the most carefully regulated exercise and a constant life in the open air, ought he not to be given the greatest opportunity to lead that life? Fresh air is fresh air; sunlight is sunlight. The air in Buffalo, for instance, was probably just as fresh as in Denver and the same sun illumed it, but was that fresh air as available to the patient? In the one city, out of 152 days, 112 totally cloudy; in the other, 18.

Or could a patient, ordered to keep quiet, spend as many hours out of doors with a mean temperature of 18° in Chicago, as in Denver, where the mean minimum was much of the time higher than the maximum in Chicago?

Climate is not a thing in itself; it is only the conditions of sun and rain and heat and cold and wind prevailing in any place. It is not a treatment for anything, but in a disease in which our weapons are discipline, food and outdoor life, a study of meteorologic conditions will enable us to place the patient where he can obtain the best opportunity for living that outdoor life most constantly and most comfortably.

It is not necessary to press individual comparison further. I have said enough to show that a study of such tables as I have given in this paper will prove that all weather is not the same, that all fresh air is not equally good, and that a location like that of Denver does offer, by the conditions of its climate, its lack of storm, its absence of cloud, its warmer sunshine, definite advantages for the outdoor life so essential to the welfare of the tubercular invalid.

IMPLANTATIONS OF SILVER FILIGREE FOR CURE OF LARGE VENTRAL HERNIA. REPORT OF TWO CASES.*

BY H. B. PERRY, M.D., NORTHAMPTON, MASS.

THERE is no operation of reconstruction that the surgeon is called upon to perform that taxes more the resources at hand or promises less as far as restoration of function is concerned than large, ventral hernia of long standing, whether post-operative, congenital or acquired. The principle involved in the two cases I have the honor to detail to this society is an old one, although the technique is of a later period than when silver wire was first used as a buried suture.

In the evolution of suture materials silver wire has always been in evidence. Shede was the first to use it as a buried suture. His method was to include all the structures except the skin as a preventive of subsequent hernia. A new impetus was given the silver wire suture when

* Read before The Massachusetts Medical Society, June 7, 1904

Credé published his discovery of the antiseptic properties of silver. In this country A. M. Phelps of New York was one of the first to use silver wire sutures in closing abdominal wounds, as well as its use in radical cure of hernia. The plan followed by him was to use a single strand, crossing and recrossing, to insure strength and solidity. The cases done by him were not, in the main, successful, owing, no doubt, partly, to faulty asepsis, partly to the impossibility of using a single strand of wire without more or less strangulation of the tissues and, consequently, tissue necrosis. His use of silver wire began in 1892. From this time until 1900, when O. Witzel of Bonn published a report of a series of cases of hernia, giving results of the use of buried silver wire, very little progress was made, and the advance made since then is largely due to improved asepsis. Witzel's plan was to form a weave or network over the hernial opening with a single strand of wire. About the same time that Witzel reported his cases, R. Gopel of Leipsic reported a series of cases wherein a previously prepared silver filigree pad was sewed over the opening in the abdominal wall. This was the first account of the implantation of a silver filigree pad being used to cure large, ventral hernia. His deduction from his cases and claims of superiority for this particular method over that of Witzel's are as follows:

First: The tissues bordering the hernial opening are less exposed to injury and constriction.

Second: The time for operation is reduced.

Third: The meshes with the ready-made wire pad are of equal and regular dimensions, and diastasis, even of small size, less frequently met with.

Fourth: The amount of silver wire left is reduced to a minimum.

In November, 1902, Dr. Willy Myer of New York reported, in the "*Annals of Surgery*," three cases. In two of his cases previous attempts at repair had been made and were failures. The third case, owing to a large amount of adipose, seemed hopeless, except some means out of the usual line were attempted. His reports of the three cases were eminently satisfactory. The technique, as described by him, is the one employed in the cases to be reported.

It will not be necessary for me to consume time by giving in detail all of the steps of the operation, but to say that it is identical as though autoplastic repair were to be done, up to the point of closing the hernial opening. From that time the plan of procedure is as follows: The omentum should, if possible, be stitched to the margin of the hernial ring. The sac is cut away, except that sufficient is left to close over without much tension. This is done with a continuous silk suture. The fat is then excavated sufficiently wide to admit the silver wire pad and permit stitching its border to the muscles and fascia. This is done with a continuous silver wire suture of sufficient length to have its starting and finishing points together, thus reducing the rough points left to the minimum. This completed, the skin and fat is closed over all by interrupted silkworm-gut sutures. The silver pad should be of sufficient size to overlap the margins of the opening from one half to one inch. This plan is permissible only and indicated only in the classes of cases where autoplastic repair is impossible with any assurance of success, for any or all of the following reasons:

First, the large size of the hernial opening; second, long existing hernia; third, atrophy through pressure and fatty degeneration of the adjacent muscular and fibrous tissues; fourth, and most frequently, previous unsuccessful attempts at autoplastic repair; and fifth, in fatty abdominal walls.

The following cases are illustrative of two distinct types, the first a post-operative hernia having had an attempt at repair, the second an acquired umbilical hernia of many years' standing.

CASE I. Mrs. A., age fifty-two, occupation housekeeper in a factory boarding-house. In 1890 this woman was operated upon and a large ovarian cyst removed. A year later, as a consequence of vomiting violently after ether to reduce a Colles' fracture, a hernia in the ventral scar developed. A year after that an operation for the cure of the hernia was done, which was unsuccessful, inasmuch as in six months the hernia returned as bad as before. This woman felt after the first trial that a cure was impossible and began a truss and abdominal band existence. In 1896 matters grew worse, and until 1903 she had been a constant sufferer and from 1900 she had never had a day free from pain, many times requiring large doses of morphine to be comfortable. In January, 1903, she was a woman five feet two inches in height, weighed one hundred and ninety pounds, with a fat, pendulous abdomen. The hernia was very large, containing intestine and omentum, and was not reducible. On Jan. 16, 1903, she was operated upon and a silver filigree pad, four by six inches, was stitched snugly to the muscles and fascia, around an opening two inches and a half wide and four inches in its longest dimension. In this case we could not utilize the omentum by fastening it to the margin of the hernial ring, because at this and at previous operations it had been very largely removed. The skin was sutured over the pad by interrupted silkworm gut. In ten days the wound had healed entirely, she was allowed out of bed in three weeks and went home in four.

CASE II. Mrs. B., age forty-three, occupation housewife, had had a hernia for a long time, could not remember when it began, but for the last six years it had given constantly increasing discomfort and pain, until, the 1st of March, 1903, life had become unbearable and the patient sought and accepted anything that offered any chance of relief. This case was first seen the 12th of March, 1903. She was then a woman five feet in height and weighed about two hundred pounds, with a large deposit of adipose over the abdomen. The hernia was a little to the left of the umbilicus and contained mostly omentum and was not reducible. Her operation was done March 20, 1903. The hernial opening was two by two and a half inches, the largest diameter in the direction of the long axis of the body. In this case the omentum was stitched to the margins of the openings with a continuous silk suture, and a silver filigree wire pad, three inches by

four inches, stitched to the muscles and fascia with a continuous silver wire suture. The skin was closed by interrupted silkworm gut with the usual dressings. This patient was out of bed in three weeks and was allowed home in four.

In each case there were indications for this operation; namely, each of long standing, with atrophy and thinning of the muscles and fascia, large hernial openings and, in Case I, previous attempts at repair. These cases have been seen recently and are well. Case I, eighteen months after operation, is, with the assistance of a green Polish girl, caring for a large family. Case II, fifteen months after operation, is doing the housework for herself and husband with comfort, which she had been unable to do for several years before. A close examination of each case shows a firm, solid abdominal wall without suggestion of diastasis. These women claim to experience no discomfort or consciousness of a foreign body in the abdominal wall, and are both enjoying life thoroughly. The question naturally arises, Will they ever experience any trouble, and, if so, why, after more than a year of freedom? The operation is not difficult, and, with strict asepsis, should be successful.

I venture to suggest this operation as a remedial agent worthy of the trial in that class of cases where tissues already existing in the patient cannot be utilized to cure the defect.

Clinical Department.

A CASE OF MALIGNANT ENDOCARDITIS WITH RECOVERY.

BY CHARLES F. WITHINGTON, M.D., BOSTON,
Visiting Physician, Boston City Hospital.

The following case, interesting from the etiology and as bearing upon the disputed question whether cases of this very grave disease ever recover, seems deserving of record.

The patient, a male, single, aged twenty-six, entered the City Hospital April 19, 1904. He had been usually healthy, but had had an attack of gonorrhea, his first, about March 8 of this year. Two weeks later he came down with measles, and two days after he began to sit up. Following this disease, he was taken with sudden and severe pain in the region of the heart, with dyspnea, lasting severely for four hours. There were chills and irregular fever with sweating and cough, which have persisted during the intervening time till his admission to the hospital. Four days before entrance he had pain in his left leg, which rapidly swelled and turned purple; sweating increased.

The physical examination on entrance showed a well-developed, but very sick-looking man. Temperature, 102–103; pulse, 160–170; orthopnea. The heart area as shown by percussion was 3 cm. to right and 16 cm. to left of the median line; a thrill, presystolic in time, was felt below the nipple; gallop rhythm; no murmur was heard at the apex, but a short systolic was heard in the fourth space to the left of the sternum. There were limited areas of consolidation in both backs, toward the bases, not involving the whole of either lower lobe. There was marked phlebitis of the left leg throughout its whole extent. The left calf measured three inches more than its fellow, and the thigh was only a little less swollen. Marked tenderness over the popliteal and femoral veins. Leucocytosis, 16,200.

During the next few days the heart action grew less tumultuous, the murmur became more distinct. Pulmonic second increased; no pericardial friction. The fever ran from 103 to 101, but showed a tendency to lowering of the curve. On April 25, six days after entrance, and about thirty-eight days after the onset of the gonorrhea, blood was taken from the vein at the elbow with antiseptic precautions and was reported by the pathologist of the hospital to show in the culture gonococci. This confirmed the opinion already held that the endocardial trouble was of gonorrheal origin. Soon after this the fever curve reached normal, and after April 28 the temperature never again rose much above the normal line. The phlebitis was distinctly less on April 30.

May 8 he began to sit in a wheel chair. The systolic murmur is still present, as before, but there are no cardiac symptoms, and the heart area is less than before. There is no dyspnea. On May 19 the limits of heart dullness were 2.5 cm. to right and 11 to left of the median line. A white count on May 28 showed 9,400 leucocytes.

In early June the patient was practically well, walking about and having no symptoms. The murmur is still heard, loudest in the second left interspace, less distinctly at the apex. The areas of consolidation in the back, which were considered to be pulmonary infarcts or embolic pneumonia, were nearly resolved.

Of course, the rôle of gonorrhea in the production of some cases of ulcerative endocarditis is now established by numerous post-mortem observations, but I believe few cases have occurred in which pathologists have been able to demonstrate this organism *intra vitam* in the blood current.

Medical Progress.

RECENT PROGRESS IN NEUROLOGY.

BY PHILIP COOMBS KNAPP, A.M., M.D., BOSTON.

PLANTAR REFLEX.

Barnes[1] has examined the plantar reflex in about 2,500 cases, fifty per cent of whom were suffering from organic nervous disease and twenty per cent from "functional" nervous disease. He concludes that in adults an extensor response (Babinski's sign) never occurs in health; it is always indicative of organic disease. The pyramidal system need not be so injured as to show post-mortem lesions. An extensor response may be produced in any condition which greatly raises intracranial pressure, even if that condition does not cause a demonstrable lesion of the pyramidal system. For instance, an extensor response may occur in hydrocephalus, meningitis, cerebral tumor, etc.; in such cases the extensor reponse usually occurs only in comatose or semi-comatose states. It also occurs in convulsive conditions of organic origin; *e. g.*, in epilepsy, uremia, infantile convulsions, strychnine poisoning, etc. It never occurs in hysteria and allied conditions, unless some organic disease is also present. A flexor

[1] Review of Neurology and Psychiatry, May, 1904.

response is the normal plantar reflex of the adult; it may occur also in pyramidal disease: (*a*) In acute conditions if only a small amount of the pyramidal influx is removed by an organic cause; or (*b*) in chronic cases, even when a large amount of the pyramidal influx is removed. Under certain conditions it is sometimes possible to obtain an extensor response when the leg is extended, but when the thigh is flexed and rotated outwards and the knee bent, we may obtain a flexor response from the same foot; this may be termed the position of pyramidal equilibrium. The position of pyramidal equilibrium may occur when about five to ten per cent of the pyramidal fibers are thrown out of action in acute cases, but in very chronic cases it may be present when nearly half the fibers are destroyed. There is a contant tendency in the adult for an extensor response to give way to a flexor response; the more chronic the case, and the less severe the pyramidal lesion, the more rapidly will a flexor response be re-established, even though the limb remain severely paralyzed and contracted. The infantile response of children under the age of two years is dependent upon the immaturity of the pyramidal tracts; it resembles the response of pyramidal equilibrium rather than that of a full spasticity. The extensor response comes on simultaneously with the incidence of pyramidal disease. The reflex is not abolished by total transverse section of the cord, and appears to be less affected than any other reflex by "nerve shock." The plantar reflex may be absent in health when the foot is cold or damp; it is also frequently absent in hysteria, multiple neuritis, infantile paralysis affecting the leg and in severe tabes.

Byron Bramwell[2] reports four cases of hemiplegia in which there was an extensor response on the paralyzed side, but, on stimulating the sole of the non-paralyzed foot, he obtained a cross reflex in the paralyzed foot which was a normal flexor response. In such cases he thinks that the reflex impulse must pass from the opposite anterior horn of the spinal cord without forming a connection with the reflex arc in the gray matter of the paralyzed side. It is more probable, however, that the reflex impulse from the sound side stimulates the motor element of the normal flexor reflex arc, which has been damaged by disease, and causes it once more to perform its functions.

TRIGEMINAL NEURALGIA.

Verger[3] recognizes two types of trigeminal neuralgia, one of average intensity with a region of continuous pain, the other essentially paroxysmal, with excessively painful paroxysms separated by intervals of comparative calm, the true *tic douloureux*. The intensity and the resistance of the painful symptoms to treatment are the chief features of the second type. For this type the aid of surgery has been more and more invoked, until, at present, there is a tendency to resort to the most extreme surgical measures, removal of the Gasserian ganglion, which often proves fatal. Verger maintains, however, that there are neuralgias of central origin, where the cause is to be found in some lesion of the ganglion or the nerve roots, and neuralgias of peripheral origin, where the lesion is in the extremities of the nerve. The latter are cured by peripheral operations, and in such cases there may be an interstitial neuritis and lesions of the vasa nervorum. In these cases there may be secondary lesions in the ganglion from ascending neuritis. If this distinction can be made clinically, it is obviously of great importance in distinguishing the cases where a simple peripheral operation may prove curative from those where the more dangerous Gasserian operation is to be considered. Verger classifies his cases, twenty-three in number, by their behavior to injections of a two per cent cocaine solution in the painful spot. If the injection suppresses the neuralgic crises for the moment, the cause is probably in the periphery; if it does not modify the crises, the cause is higher up in the roots or ganglion. In the first group of cases, eight in number, the principal symptoms were the existence of a continuous pain between the neuralgic paroxysms in a zone more limited than the territory of distribution of the corresponding nerve; the possibility of exciting a crisis by chewing, sneezing, coughing, etc., and by exciting the painful zone; the constant existence of pain provoked by deep pressure on this zone; and the frequent occurrence of pain provoked at Valleix's points. There were frequently disturbances of sensibility to pricking and absence of spasmodic secretory symptoms. The pupillary reactions were normal. In ten cases cocaine had no effect. The characteristics of these cases were a long evolution, by degrees, with spontaneous periods of calm, which may be prolonged; the intermittent manifestation of the pains in the form of short paroxysms, appearing and disappearing suddenly and separated by completely painless intervals; the habitual absence of a true painful zone, the pain darting centrifugally from a definite point; chewing, swallowing and talking or taking too hot or too cold drinks habitually provoke the pain; the paroxysms cannot be provoked by peripheral irritation; there are no Valleix's points or defective sensibility of the face; there are tonic or clonic spasmodic phenomena in the course of the paroxysms. Furthermore, the pupils do not react to the paroxysm or to provoked pain, and there are paroxysmal secretory and vasomotor disturbances. In two cases of neuralgia due to lesions involving the roots the pain was continuous, with sensations of pulling, twisting and burning, with exacerbations coming on in crises at intervals of one or more days; there were marked disturbances of sensibility in the face and mucous membranes; external irritation had little influence in producing pain, and the pain involved the entire half of the face. In addition, there are often other focal symptoms, such as paralysis of the muscles of mastication. He reports three other atypical cases, chiefly

[2] Review of Neurology and Psychiatry, December 1903.
[3] Revue de Médecine, January, February, 1904.

hysterical, as examples of a neuralgia *sine materia*, a neurasthenic or hysterical topoalgia. In these cases the pain involves a larger and less definite area, it comes on independently of external irritation, its onset, evolution and disappearance are sensibly influenced by psychical causes, and it is often attended by the stigmata of hysteria. In these cases the pain often disappears permanently or for a long period after a single injection of cocaine. In many cases the diagnosis of the seat of the trouble can be made from the symptoms given above, but in doubtful cases it should be confirmed by the injection of cocaine *loco dolenti*. In regard to treatment the cases of peripheral origin are often materially benefited by the cocaine injections; if not, an operation affords a definite prospect of permanent cure. In cases of cerebral origin, Verger believes that Trousseau's old method of progressive doses of opium is most likely to cure. He condemns the progressive operations on the nerve beginning at the periphery and dividing further and further back, and he is very skeptical as to the advisability of removing the Gasserian ganglion. He finds a mortality of one case out of three and an absolute cure in one case out of five after such an operation.

BERI-BERI.

From a study of cases of beri-beri in the Kwala Lumpor jail in the Malay Peninsula, Wright [4] believes that it is an infectious disease due to a specific organism, as yet unknown, which exists in close, sunless and somewhat damp places, and gains entrance to the body by way of the mouth, giving rise to a local lesion in the stomach and small intestines; that it there produces a poison which enters the circulation and causes more or less extensive disease in certain neurones. He classifies the disease under three heads: The acute pernicious form, in which the organism produces inflammation or marked congestion of the mucous membrane of the stomach and duodenum, with other signs of infection, and a toxine sufficient to cause death in a short time; and acute and sub-acute forms, in which there is a lesser lesion of the stomach and a lesser effect upon the nervous system. These cases continue in a state of partial paralysis for a time and then recover, or they remain in a state of partial paralysis for months or years, and ultimately die of cardiac exhaustion or of some intercurrent disease. This second class of cases he terms beri-beric residual paralysis, which is different from the specific acute infection. He found that beri-beri had been epidemic and endemic in the jail for several years, and he placed monkeys in some of the cells which he believed were infected. A part of these were attacked by the disease, and the changes in the nervous system were studied. The earliest change was a fine granulation of the motor cells of the bulb and cord in the acute pernicious form. In the cases of residual paralysis the cells showed a complete chromatolysis, with a flattening of the nucleus and atrophy of the nerve fibers. In the long-standing cases the cell becomes vacuolated, its membrane ruptures, the cell is irregularly stained and the processes are lost or broken. The nucleolus is extruded. This stage is accompanied by distinct atrophy of many fibers, and, of course, by complete paralysis. He concludes that the organism is not one that affects or develops on food commonly used by man, and no special food is a factor in the production of the disease. The organism is, however, probably swallowed with food accidentally contaminated by it. It multiplies in the stomach and upper part of the small intestine, causes a local congestion or inflammation and elaborates a toxine, which, being absorbed, acts with varying force bilaterally and symmetrically on certain vital and ordinary neurones to give rise to the collection of symptoms known as beri-beri. The period of incubation is short. Rice cannot be seriously considered to have any influence in the causation.

[4] Brain, xxvi, 488, Part civ, 1903.

ARTERIOSCLEROSIS OF THE SPINAL CORD.

Pic and Bonnamour [5] have studied the special symptoms attendant upon arteriosclerosis in old people in twenty-eight cases. There is a morbid type, constituted essentially by weakness of the legs, exaggeration of the knee-jerks and a gait with short steps, which they term the spastic paresis of the atheromatous. This paresis comes on slowly and progressively, either independently, leading to a progressive contracture, or at the same time with various cerebral troubles, spasmodic laughing or crying and senile dementia. At the autopsy, beside a general atheroma, which is well marked in the arteries of the spinal cord, they find a sclerosis of the cord which is not systemic or diffuse and is most marked in the pyramidal tracts and the posterior columns. It is probable that this change in the spinal cord, which is the cause of the spastic paresis, is of vascular origin, like the lesions in the brain, which frequently accompany it. Instead of being general and diffuse, this sclerosis may be localized and give rise to conditions like those of the systemic scleroses.

THE ASSOCIATION OF IDEAS IN APHASIA.

Pierre Marie and Vaschide [6] have studied the association of ideas in nine patients with aphasia, who had previously been the objects of careful research in studying the clinical aspects of aphasia. They employed many of the well-known mental tests of psychology, with the intent to excite in them the association of ideas by fixing their attention upon a word or a fact and studying the association thus produced. The experiments were arranged so that the subject should respond by a single reaction or by all possible reactions. The result of their researches show that aphasics, whatever be the form of the trouble, have an exceedingly poor association of ideas. They find no image in the conscious sphere of their intelligence. The word, the sensory excitation or the act seem to have no

[5] Revue de Médecine, January, February, 1904.
[6] Revue Neurologique, 30 July, 1903.

power of association. By continuing the excitations almost nothing it awakened, and the images of their thought are clouded by these new excitements. The mental effort to associate an image or to seize it, either by contiguity or by any resemblance, is extremely poor in its results. There is a mental inertia. The subjects seem distracted, and affirm that the thought is as poor as can possibly be conceived. They can think of nothing, and the word, which in the normal man provokes many images, finds no concomitant in their thought, even after several minutes. Beside the verbal and visual association they tried to produce associations of ideas by representing some action. They obtained similar results with this difference, that the subjects, instead of associating the absent elements of the act or the elements which must take place in the evolution of the act, executed it automatically without being able to dissociate the elements. The patients were almost wholly unable to draw any advantage from assonances, consonances, contiguities, resemblances, etc., — in a word, from any of the elements which normal subjects use to facilitate association. In one case of traumatic aphasia, however, the association of ideas, although poor, was very nearly normal. In two cases of dysarthria they did not find any great loss of association, the patients behaving more nearly like normal individuals.

JACKSONIAN EPILEPSY.

Boué [7] has attempted to define the topographical value of the attack of Jacksonian epilepsy. He has studied fifty-seven cases where the attack began in the arm. From an analysis of these cases he finds that the attack does not indicate the precise location of the lesion in the brain, but that in ninety-two per cent it indicates approximately a lesion in the Rolandic or para-Rolandic region. The symptoms of the attack cannot give us any more definite idea of the localization. The cerebral lesions which produced partial epilepsy which began in the arm were divided as follows: (1) Motor zone: middle third, fifteen cases; lower third, five cases; upper third, three cases; the whole extent, five cases; ascending frontal (middle third), twelve cases; ascending parietal (middle third), two cases. (2) Frontal lobe: first frontal (posterior part), seven cases; second frontal (posterior part), one case; first and second frontal (posterior part), two cases; anterior part of the frontal lobe, two cases; lower part of the frontal lobe, one case. (3) Centrum ovale, two cases. Drivet [8] has continued the study, applying it to the cases beginning in the face and leg, fifty-seven cases in all. Of the cases beginning in the leg twenty-six were in the motor zone and nine outside. Of those outside the motor zone the lesion was in the temporal lobe in three cases, in the corpus callosum and optic thalamus in one, and in the cerebellum in two. In the cases beginning in the leg the lesion was in the motor zone in eighteen and outside it in four. He comes to the same conclusions as Boué, that in seventy-eight per cent of the cases the lesion is in the Rolandic area and in fourteen per cent in the para-Rolandic region, ninety-two per cent in all. The lesion in the Rolandic region is most often situated on the level with the center for the part convulsed or paralyzed, but it may be above or below. The study of the symptoms can furnish strong possibilities for localization, the most important symptoms being the aura and paralysis. The existence of aphasia may aid the local diagnosis, yet none of these signs is of absolute value.

[7] These de Bordeaux, Ref. in Revue Neurologique, 30 June, 1903
[8] Ibid., 15 Nov., 1903.

EPILEPSY.

Turner [9] has studied the prognosis and curability of epilepsy in three hundred and sixty-six cases which had been under constant observation and treatment for at least two years. These cases were divided into three series according as they have responded successfully or otherwise to treatment, — the arrested, improved and confirmed cases. A family history of epilepsy is found more frequently among those who have become confirmed epileptics, but a hereditary history of epilepsy does not necessarily militate against the prospects of arrest or improvement of the disease in any given case. The age at the onset of the disease has a special bearing upon the prognosis. The most unsatisfactory cases are those in which the disease commences before the age of ten. They show the smallest percentage of recoveries and the largest of confirmed cases. If the disease arises between fifteen and twenty an almost equal percentage of arrested and confirmed cases may be expected. The greatest percentage of confirmed cases is found amongst those in which the disease begins between twenty-five and thirty-five, from which time onwards there is a steady increase in the expectations of arrest and diminution in the number which become confirmed. The duration of the disease influences prognosis to this extent, that the arrest or improvement is much more likely during the first five years than during the second five, but cases may be arrested even after twenty or thirty years. The greatest percentage of confirmed and the lowest percentage of arrested cases occur in patients with daily or weekly fits, while the smallest percentage of confirmed and highest percentage of arrested cases have only one or two fits a year. The character of the seizures is of influence, in that the major attacks are more tractable than the combined major and minor attacks, and the minor attacks occurring alone are least tractable. Marriage and pregnancy have little influence upon the fits, but the puerperium and lactation seem to favor their occurrence. The common incidence of epileptic fits is a regular periodicity. The fits may increase or decrease in number in a definite period of time, and a case of the increasing type may, by treatment, be converted into one of the decreasing variety. Long remissions induced either by treatment or spontaneously, lasting for several

[9] Lancet, 13 June, 1903.

years, are not unusual. They are of favorable prognostic value, but are not synonymous with a cure. A period of arrest for at least nine years has been fixed as the basis upon which a cure of epilepsy may be established. Adopting this definition, the writer regards 10.2 per cent of epileptics as curable. There are some cases which may be regarded as belonging to a curable type of the disease. These present little or no mental impairment, even though the fits may have existed for a long period. In the cases in which arrest took place cessation of the fits occurred during the first year of continuous treatment in over fifty per cent.

In a subsequent communication Turner[10] studies the influence of the mental condition in the prognosis of the disease, basing his conclusions upon the study of one hundred and sixty-one cases in the Epileptic Colony at Chalfont St. Peter. These cases were divided into four classes: (*a*) Intellectually normal 13.6 per cent. (*b*) With impaired memory 31.6 per cent. (*c*) Feeble-minded 25.4 per cent. (*d*) Demented 29.1 per cent. Sex has little influence upon the mental condition, although men are more often affected than women, yet the highest degree of dementia is somewhat more common in women. A family predisposition to epilepsy and insanity favors the development of some degree of mental impairment. The duration of the disease has some influence upon the mental condition; mental impairment is less common when the fits have lasted less than five years, just as mental integrity is less common when the attacks have continued for ten or more years; but mental health has been observed in cases lasting over twenty years, and mental deficiency in cases lasting less than five. The earlier the onset of the disease, the less the probability of an unimpaired mental state. The profoundest degrees of dementia are seen most commonly when the major and minor attacks co-exist. The *petit mal* seizures occurring alone are found with the lower grades of mental impairment. When the *grand mal* occurs alone, mental health is as common as mental deficiency. The more frequent the seizures, the more the degree of mental impairment. Fits recurring in series are accompanied by the high grade of dementia. The characteristic physiognomy of the disease is more common with the higher grades of dementia, but it may be observed in patients without any mental failure. The mental condition between the attacks seen in most cases of epilepsy is regarded as one expression of the disease of which the fits constitute another. The former, therefore, is not directly dependent upon the fits, and the frequency and character of the attacks, in association with the degree of mental failure, indicate the severity and intensity of the disease. The epileptic temperament, which is distinct from the mental impairment, is also described. Epileptics are usually sociable and possessed by a religious fervor, which often contrasts strongly with their actions, these being mostly perverted, passionate or even immoral. On the whole, they are self-opinionated and possess a conceit and assurance out of all proportion to their achievements. Their mental perspective is blurred and disproportionate. Their want of initiative is characteristic. Some are good workers, but most require supervision and direction. Many of them are lethargic and lazy, yet also hasty, pugnacious, contentious and difficult to live with. During a temporary increase in the frequency of the fits there is often a temporary dulling of the memory and finer mental faculties which should not be mistaken for beginning dementia. There is also often temporary irritability, lethargy, impairment of memory, and often a delusional state for a day or two before the onset of a fit.

[10] Lancet, 9 April, 1904.

Reports of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

TWENTY-NINTH ANNUAL MEETING, HELD IN BOSTON, MASS., MAY 24, 25 AND 26, 1904.

(Concluded from No. 3, p. 79.)

SECOND DAY. — (Continued.)

IMMEDIATE REPAIR OF INJURIES OF THE PELVIC FLOOR.

DR. HENRY C. COE of New York said that he had selected this topic in order to emphasize the fact that by careful attention to puerperal lesions at the time of their occurrence the patient could be spared much future trouble. He assumed that it was the usual practice of modern accoucheurs to repair injuries to the pelvic floor at once, but it was one thing to suture visible tears and another to repair deeper lesions. Even when perfect union of the lacerations was obtained, the occurrence of prolapsus, cystocele and rectocele, months afterward, proved that there had been some fault in the technique. The fact of the separation of the fascia and levatores ani muscles must be recognized as well as the superficial tear, especially after difficult instrumental deliveries. An illustrative case from the writer's practice was cited. The tendency of the accoucheur after a tedious instrumental case, in which both physician and patient were exhausted, was to spend as little time as possible in repairing lesions of the soft parts, trusting to aseptic technique to insure perfect healing. The writer was firmly of the opinion that it paid to do the work thoroughly at the time, unless the patient's condition was such as to render delay advisable. He had had such good results from immediate operations that the intermediate did not appeal to him.

In conclusion, he alluded to the fact that the modern accoucheur must be a surgeon as well as an obstetrician. It was expected of him to leave the patient in as good condition as he found her, otherwise he properly laid himself open to criticism.

UNIFORMITY IN PELVIC AND CRANIAL MEASUREMENTS.

DR. A. F. A. KING of Washington, D. C., read a paper on this subject, in which he reached the following conclusions: "(1) That at present the measurements of the normal and pelvic fetal head are indefinite and unsettled, and must continue to be so so long as they are determined by our present methods of mensuration. (2) The chief purpose in obtaining the

normal dimensions of these structures being for teaching and learning the normal mechanism of labor, it is proposed to adopt an ideal or hypothetical head and pelvis, upon the dimensions of which all authorities may agree. (3) In the adoption of such ideal structures, it is unnecessary and undesirable to define any measurement with exact precision — no fraction smaller than one fourth of an inch or than half a centimeter (in the metric system) being required. (4) Race variation forms no real obstacle to the proposed plan, and other apparent difficulties can be overcome. Finally, should the proposition meet with approval, it is suggested that this society take the initiative in bringing the matter in proper form before some forthcoming international medical congress for general adoption."

Accordingly, a committee was appointed by the president to consider the matter of uniformity in pelvic and cranial measurements, and report at the next annual meeting.

SYMPOSIUM ON NON-OPERATIVE LOCAL TREATMENT IN GYNECOLOGY.

DR. WILLIS E. FORD of Utica, N. Y., in reading the first paper, said that no one would deny that greater good had come from surgical treatment of diseases peculiar to women than was ever dreamed of by the early gynecologists who did not operate. No comparison of results could be made. He did not think it was true, however, that the specialty ought to become purely surgical. Pathology learned by pelvic and abdominal surgery ought to be clearer and better than was ever discovered post-mortem. It was fair to assume that men who did this work had a better idea of the natural history, progress and dangers of these diseases than those who did not operate; and that, therefore, the early treatment ought to be in the hands of men who were also doing surgical work. The nervous habit could not be cured by surgical procedure. What was commonly called neurasthenia was not a disease, but an established habit, possible only to those who had from birth an unstable or weak nervous constitution. Before the mental symptoms began was the time to prevent neurasthenics from becoming permanent invalids. That the nervous habit could not be cured by surgery had been proven by the fact that the removal of diseased ovaries and such like operations on epileptic women had not cured the epilepsy or neurasthenia. The argument, therefore, was that in those ailments that tended to disturb the emotions, especially those of the reproductive organs of men or women, the serious thing was not the pain experienced, but the permanent invalidism which was brought about by the protracted local sensations that in time disturbed the mental equilibrium and brought about the invalid habit. These local irritations ought to be treated by skilled gynecologists, and not allowed to develop either the mental or physical ailments which were so common a result. These arguments were enough to make the profession revive its interest in non-operative procedures. Recent displacements, especially in young people, and acute infections were mentioned as demanding non-surgical care early, if one wished to avoid the more serious ailments, and especially the most serious of all, the mental disorder called neurasthenia.

THE VALUE OF NON-OPERATIVE LOCAL TREATMENT IN PELVIC DISORDERS.

DR. WALTER P. MANTON of Detroit, Mich., said that the ignorance of proper methods, together with the fascinations of operative measures, had brought the local treatment of pelvic disease into disrepute. Three of the factors, which among others at the present time were largely responsible for the neglect of medical gynecology, were: (1) The average physician's lack of knowledge in the accurate diagnosis and local treatment of pelvic disease, (2) the allurements and fascinations of surgery, and (3) competition in the field of practice.

While it was true that no amount of instruction could impart a *tactus eruditus*, still any one could acquire a knowledge of the primary principles underlying the correct interpretation of gynecic ailments, if opportunity was offered for the practical examination of patients under competent direction. In ignoring the benefits to be derived from medicine, he was convinced that surgery had gone too far and that it had overshot the mark, but that the present tendency to operative measures in all conditions affecting the pelvic organs could not be ascribed so much to the good which surgery, rightly directed, was capable of accomplishing as to other elements which had entered into the case, was also evident. In the best of hands the results from local treatment in pelvic diseases were frequently slow in manifesting themselves, and discouragements were often met with, but in suitable cases persistent effort would ultimately attain the desired end.

The objects of local treatment were the relief of pain and irritation, often of a reflex nature; the allaying of congestion and inflammation; the absorption of the products of inflammation, and the reposition of displaced organs. In the regulation of the uterine functions, in congestions and mild inflammations of that organ and surrounding parts, and in displacements of the uterus, with and without adhesions, the application of proper local treatment was of signal value; while in prolapse of the tubes and ovaries, even in the presence of extensive adhesions, but without ascertainable morbid changes in the organs themselves, vaginal tamponade offered the simplest and most efficient means of reposition and cure.

TREATMENT PREPARATORY TO OPERATION.

DR. HENRY C. COE of New York introduced his remarks with the statement that while his early training had led him to believe that such treatment was practically indispensable in cases of so-called "cellulitis," subsequent experience had convinced him that this notion was not in accordance with pathology or common sense. He had expressed skepticism in this subject as long ago as 1886, when he read a paper on the "Exaggerated Importance of Minor Pelvic Inflammation," and subsequent experience had only served to confirm his opinion that old pelvic exudates and adhesions were not *per se* a contra-indication to operations on the uterus. Modern aseptic technique was a sufficient safeguard against danger from this source.

The reader contrasted the old practice of keeping a patient in a hospital for several months, with the preparatory treatment between each minor operation, with the present plan of performing combined operation at one séance, and sending out in three or four weeks. He questioned the actual value of the hot vaginal douche, local applications to the vaginal fornix, treatment of the ectropic cervix, etc., previous to trachelorrhaphy, since the diseased tissue would all be removed at once by amputation. At the same time he admitted the remarkable results often observed as regards the absorption of extensive pelvic exudates. Acute and subacute inflammations in and around the adnexa formed the real contra-indication to operation, and doubtless surgeons were not always

as careful as those of the former, more conservative generation in selecting their cases. Competition and the rush of modern life were responsible for some ill-advised operations, minor as well as major.

In regard to major operations the author thought that (excluding pus cases) general preparatory treatment of the patient was rather more important than local. He believed, however, that the admirable results obtained by the pioneers in the treatment of vesico-vaginal fistulæ were due to careful preparatory treatment, such as the division of cicatrices, stretching of the vagina, etc. Fortunately, we were seldom called upon to handle such complicated cases as those described by Sims, Emmet and Bozeman. With all our improvements in technique, we had not yet outgrown all the wisdom of our old teachers.

THE VALUE OF POST-OPERATIVE LOCAL TREATMENT.

Dr. J. Riddle Goffe of New York said the experience of all observers was that local treatment relieved congestion, pain and discomfort; inaugurated, hastened and accomplished the absorption of edema, plastic exudate, adhesions and pseudo-hypertrophy. If it would relieve these conditions, how much more certainly would it prevent them? It had been found serviceable in preventing the deposit of plastic exudate and the reformation of adhesions in cases in which these were present at the time of operation. It was especially valuable in cases subjected to vaginal section for the relief of sterility. The author reported several instructive cases to substantiate the points made in his paper.

THE IMPLANTATION OF THE HUMAN OVUM IN THE UTERUS.

Dr. Chas. Sedgwick Minot of Boston discussed this subject by request. He stated that the human ovum produced upon its exterior, during its earliest stages of development, a thick layer of cells, the trophoblast. The function of the trophoblast was to corrode away a portion of the mucous membrane of the uterus, making a cavity in which the ovum lodged itself. The trophoblast thereupon underwent a hypertrophic degeneration, such as to produce a series of irregular spaces, which persisted and became the intervillous spaces of the placenta. Papillary outgrowths of the chorionic mesoderm meanwhile penetrated the trophoblast, initiating the formation of the chorionic villi. The trophoblastic cells over each mesodermic outgrowth persisted in two layers, the inner cellular and the outer syncytial. These two layers represented the first stage of the villus ectoderm. Similar observations had been made upon primates, and were compared with those upon the human subject. He compared briefly the method of implantation in man with that in other animals, to show that the trophoblast was of general occurrence, and that by destroying uterine tissues it inaugurated the formation of the true chorionic placenta.

BATHING DURING THE MENSTRUAL PERIOD.

Dr. J. Clifton Edgar of New York said that in the consideration of this subject several questions suggested themselves, namely, first, the advisability of bathing of any description during the menstrual period, and if at all, to what extent. Second, the use of the bath in dysmenorrhea. Third, the use of Nauheim or other chemical baths or hydriatic procedures. Fourth, the risk of infection of the endometrium in intramenstrual tub bathing. Fifth, the influence of modern athletics on women, lessening the risk, if any, of intramenstrual bathing. These questions were submitted to the members of the society, from whom he had received one hundred and twenty-two acknowledgments.

From the replies received and the literature on the subject, he drew the following conclusions: "(1) All forms of bathing during the menstrual period are largely a matter of habit, and usually can be acquired by cautious and gentle progression, but not for every woman does this hold good; and surf bathing, where the body surface remains chilled for some time, should always be excepted. (2) A daily tepid sponge bath (85° to 92° F.) during the menstrual period is not only a harmless proceeding, but is demanded by the rules of hygiene. (3) In the majority of if not all women, tepid (85° to 92° F.) sponge bathing after the establishment of the menstrual flow, namely, second or third day, is a perfectly safe practice. (4) Furthermore, in most women the habit of using the tepid shower or tub bath after the first day or two of the flow can with safety be acquired."

THE STREPTOCOCCUS IN GYNECOLOGICAL SURGERY.

Dr. Hunter Robb of Cleveland, Ohio, stated that in order to arrive at some definite conclusions with reference to the Streptococcus pyogenes as a cause of death in his work, he had made an analysis of all his cases in which this organism had been found during the past six years. It was shown from observations that quite a large number of his patients died, and several were unimproved. It was also noticed that in the great majority of cases in which this organism was met with, there was a previous history of infection following labor, or an induced criminal abortion. In the past six years he had had 137 cases of abortion (including a few cases of labor) in which it was necessary to carry out some form of treatment. Of this number 104, or 75.9%, recovered; 17, or 12.4%, were improved; 1, or .8%, was unimproved, and 15, or 10.9%, died. In 16 of the 137 cases the streptococcus was found. The total number of all his cases in which the streptococcus was found was 40, consequently those in which this organism was found following an abortion or labor formed 40% of the total number of streptococcus cases from every source. Of these 16 patients (streptococcus cases) following abortion or labor, 4, or 25%, recovered; 3, or 18.75%, were improved; 9, or 56.25%, died. In the whole 40 cases from every source, in which the streptococcus was found, the results were as follows: Recovered, 20, or 50%; improved, 6, or 15%; deaths, 14, or 35%.

The streptococcus was found in the following combinations, given in order of frequency: (1) Streptococcus alone; (2) Streptococcus and Staphylococcus pyogenes aureus; (3) Streptococcus, Staphylococcus aureus, and Bacillus coli communis. In all these cases, except 3 in which they were obtained from the vagina, the organisms were obtained from the uterus, the adnexa, the cul de sac, or from several of these situations. In other words, they were proved to be present in places which were admittedly not their normal habitat.

In the past five years he had 724 abdominal sections, with a total number of 32 deaths, or 4.43%. In 7, or 21.9%, of them, the Streptococcus pyogenes was demonstrated. In all there were 19 cases of abdominal operations in which the Streptococcus was found. Of this number, 12 recovered, or 63.2%; and 7 died, a mortality of 36.8%.

THE NATURE OF THE INDICATIONS FOR OPERATION FOR FIBROID TUMORS OF THE UTERUS.

Dr. Chas. P. Noble of Philadelphia presented a table of the degenerations and complications in a series of 1,188 cases of fibroid tumors operated upon

by Martin, Noble, Cullingworth, Frederick, Scharlieb, and in a series reported by Hunner and MacDonald. Especial attention was called to the relative frequency of adeno-carcinoma of the uterus as compared with epithelioma of the cervix. The deduction drawn from this fact was that fibroid tumors were a direct predisposing cause of cancer of the cervix. A careful consideration of the facts presented in the table, said the author, should convince any one with an open mind that the classical teachings concerning fibroid tumors were erroneous. This teaching was that fibroid tumors of the uterus were benign growths, which usually produced but few symptoms, and which after the menopause underwent retrogressive changes, becoming smaller or disappearing; that the chief danger of fibroid tumors consisted in the fact that at times they caused hemorrhage from the uterus, and that rarely they caused trouble because of their size or because of pressure on adjacent viscera. An analysis of the 1,188 cases showed that because of the degenerations in the tumors, about 16% of the women would have died without operation; about 18% would have died from the complications present. In addition, it was well known that a certain percentage would have died from intercurrent diseases brought about by the chronic anemia present in many of these cases, and by injurious pressure from the tumors upon the alimentary canal and urinary organs. In brief, at least one third of the women having fibroid tumors, as shown by the author's table, would have died had they not been submitted to operation.

THE TREATMENT OF GONORRHEA.

DR. HENRY T. BYFORD of Chicago said there was dissatisfaction with prevalent methods of treating this disease. The desideratum was a local remedy that would rapidly destroy or remove the germs without injuring the protective epithelium, and a method of application that could be used by the patient which would not carry the germs to a deeper portion of the genito-urinary tract. He advocated prolonged irrigations with hot water as a basis, and spoke of frequent injections of hot water as a substitute for prolonged irrigations. He detailed his experience with urethritis in the male, and referred to hydrogen dioxide and unirritating germicidal solutions as substitutes for plain water injections, and gave their application to gonorrhea in the female.

The advantages of this treatment, when used early, were summarized by him as follows: "(1) It prevents the spread of the disease to adjacent parts. (2) It does not injure the epithelial covering, and it tends to limit the infection to the superficial areas. (3) It removes more germs and pus cells than either astringents or disinfectants can destroy. It acts in the same way as constant irrigation, both in aborting and arresting the progress of the infection. (4) It can be used more frequently than astringents or strong germicides, so that the parts can practically be kept free from pus and germs all the time, while the method of using germicides or astringents three or four times daily allows the germs and pus to accumulate and spread between injections. (5) In the male, and possibly in the female, peroxide injections may be substituted when the time and facilities for the hot water treatment cannot be had. When the discharge has become scanty and the injections cannot readily be used so frequently, a non-irritating solution of a silver salt can follow each hot water or peroxide treatment. (6) It may be used in connection with alphozone injections for the dissolving of germs and culture material not eliminated by the douches. (7) It does no harm. It can be combined with the internal or local medication when it becomes impossible to carry it out with the necessary time-consuming detail. It exemplifies the superiority of asepsis to antisepsis."

DR. PHILANDER A. HARRIS of Paterson, N. J., exhibited and described a new uterine obstetrical dilator.

OFFICERS.

The following officers were elected: President, Dr. E. C. Dudley, Chicago, Ill.; vice-presidents, Dr. Henry D. Fry, Washington, D. C., and Dr. Henry C. Coe, New York; secretary, Dr. J. Riddle Goffe, New York; treasurer, Dr. J. M. Baldy, Philadelphia.

Niagara Falls, N. Y., was selected as the place for holding the next annual meeting, in May, 1905.

Recent Literature.

Lectures on Diseases of the Nervous System. Second series. Subjective Sensations of Sight and Sound, Abiotrophy and other lectures. By SIR WILLIAM R. GOWERS, M.D., F.R.C.P., F.R.S. 12 mo. pp. 250. With 18 illustrations. Philadelphia: P. Blakiston's Son & Co. 1904.

These lectures have been published in various medical journals during the last ten years, and now appear in this convenient form. Of the ten lectures thus collected, the first two, the Bowman lecture for 1895 on subjective visual sensations and the Bradshaw lecture for 1896 on subjective sensations of sound, are the most important. The first lecture deals with the various spectra attendant upon migraine and the epileptic attack, and gives many curious studies of such spectra made by victims of migraine. The second lecture deals chiefly with tinnitus. The title of the third lecture is a neologism coined by the writer to express degeneration or decay in consequence of a defect of vital endurance. The other lectures are on myopathy, metallic poisoning, syphilis of the nervous system, syringal hemorrhage into the spinal cord, myasthenia and the use of drugs. As may readily be inferred they are all suggestive, and will prove profitable to every student of neurology.

Gynecology, being Vol. IV of The Practical Medicine Series of Year Books. Edited by EMILIUS C. DUDLEY, A.M., M.D., Professor of Gynecology, Northwestern University Medical School; Gynecologist to St. Luke's and Wesley Hospitals, Chicago; and WILLIAM HEALY, A.B., M.D., Instructor in Gynecology, Northwestern University Medical School. March, 1904. Chicago: The Year Book Publishers.

This little book of 216 pages contains well-edited abstracts from the current gynecological literature for the year 1903, and also several new illustrations by the talented senior editor, depicting some of his most recent methods of operating. This fourth volume maintains the high standard of the preceding numbers, and is to be highly recommended to the practitioner who is keeping abreast with the latest gynecological thought.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, JULY 28, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published a Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

POSTGRADUATE TEACHING.

THERE can be no question that the undergraduate departments of our larger medical schools are becoming year by year of relatively less importance. As medical schools have become more and more affiliated, both in fact and method, with universities, it has naturally followed that the teaching should more closely conform to the university type. One of the essential means of the development of universities in this country during the past decade has been the insistence placed upon the necessity of postgraduate work, both for the good of the community and the reputation of the institution concerned. We have therefore seen large postgraduate departments growing up side by side with the work of the academic course, at times, as some have thought, to the detriment of the latter. In any case what the university needs to develop is advanced work, and this certainly may only be attained through the offering of courses of instruction in special fields which go far beyond what should be required of the undergraduate student.

The same principle finds application in medical teaching. Each year demonstrates conclusively the absolute impossibility of covering the field of knowledge, except in the most superficial way, in the four years devoted to the undergraduate medical curriculum. In this short space of time the most that may be attained is a knowledge of the fundamental branches, with a certain amount of practical hospital experience, in the more general branches of medicine. Special work along any line is precluded, if the student is to devote anything like the necessary attention to the fundamental branches. The result very naturally is that those students who desire to deepen their knowledge in any particular line, and this forms an increasingly large contingent of our medical graduates, must either take certain specialized courses or else work out for themselves laboriously the desired information. It has therefore been a very natural result that so-called postgraduate courses should be instituted, which, together with summer courses coming essentially in the same category, constitute a mass of instruction wholly without and often beyond the limits of an ordinary medical curriculum. This tendency, now well marked, has certainly come to stay, and without any question will show definite development in the course of the years to come.

An occasion of much interest was the dinner and addresses given in New York in the earlier part of this year in honor of Dr. D. B. St. John Roosa, and in commemoration of the twenty-one years since the inauguration of postgraduate medical instruction in this country. This dinner was presided over by Dr. Osler in his usual happy vein, and the various speakers, chosen from different lines of professional work, each added his testimony to the value of postgraduate teaching as such, with particular reference to the work which has been done by the New York Postgraduate School, with which Dr. Roosa has for many years been identified. This school, as is no doubt generally known, is designed to offer instruction to practitioners of medicine in all the diversified fields of practice, and in this capacity it has ministered to the needs of a large number of physicians from all parts of this country and also from abroad. It is this sort of work, under somewhat different auspices, which our large educational institutions are now everywhere doing in connection with the more elementary work of the undergraduate student. That the two types of work, which as a matter of fact differ in degree rather than in kind, should be carried on under the auspices of a single institution seems in many ways eminently desirable, and we have no doubt that however useful distinctly postgraduate schools may continue to be, their absolute need is in great measure being obviated by the extension of instruction in university medical schools. Equipment of the most complete sort is naturally essential to advanced work, and this the university with its various correlated departments may best supply.

When we consider for a moment the importance of maintaining even average intelligence in all the branches of medicine, the necessity of the postgraduate department is forthwith apparent.

Doctors removed from the immediate stimulus of large medical centers simply must have opportunity for special instruction if they are to continue to do any sort of justice to the patients who come under their care. This opportunity is being offered now as never before, and unquestionably, as the courses are made more attractive and the deficiencies of knowledge are more and more forced upon the attention of conscientious physicians, there will be a still greater influx of men to take the courses offered. As a means, therefore, of keeping active, practising physicians in touch with medical progress, and as an absolutely essential method of educating young men in special lines of work; there is every evidence that the permanency of the postgraduate system is assured. It behooves our large institutions to give renewed attention to the matter, and to establish courses and methods of instruction which will redound not only to the advantage of the graduate student, but also to the dignity and authority of the individual institution. It is also to be expected that postgraduate work will tend to give opportunity to teachers of distinguished ability among our younger medical men. Such men also the profession at large needs, for the really good teacher now, as always, is a rare product.

ACUTE LEUKEMIA.

UNTIL recently leukemia was considered as a chronic affection, undergoing its evolution within at least one year or two, but lately cases of this disease reported in France and Germany tend to show that leukemia may develop, with considerable rapidity, in one or two months, and cases of the acute form of the disease are becoming so numerous that it may be questioned whether in reality it is not quite as common, or even more so, than the chronic type. In 1899 Gilbert and Weil published a paper in the *Archives de Medecine Experimentale*, in which they give an excellent description of the acute form. The début is sudden, while the fever appears and oscillates in a most irregular manner. The objective symptoms are most variable, according to the form of the acute process. In some cases attention is attracted by an enormous hypertrophy of the spleen and lymph-nodes, while in others there are profuse hemorrhages without any lymphatic reaction. By the enlargement of the spleen and lymph-nodes the diagnosis of leukemia can be made immediately, but in the latter class, if a blood examination is not made, the diagnosis will waver towards infectious purpura or severe forms of scurvy.

In acute leukemia with lymphatic hypertrophy the clinical picture is quite different from that presented by the hemorrhagic type of the disease. Simple inspection of the patient will reveal large tumors seated in the sides of the neck and in the axilla. The abdomen is voluminous, and palpation will discover an enormous spleen and enlarged liver. By auscultation a compression of the bronchial tubes from enlarged mediastinal lymph-nodes is apparent.

In the hemorrhagic forms, as, for example, in the case reported by Jeanselme and Weil at the Société Médicale des Hôpitaux, on Feb. 19, 1904, the lymph-nodes were not much enlarged and the spleen was not greatly hypertrophied. It would appear that in this case, at least, there was an attenuation of the lymphadenic process.

On the other hand, very accentuated hemorrhages of every description may be met with. There may be epistaxis or gastrorrhagia; extensive subcutaneous and submucous extravasations may attain such a degree as to form true hematomata. The patient expectorates large quantities of blood, while the gums are often bloody as in scurvy. In the case recorded by Jeanselme and Weil, the disease appeared to follow upon a pseudo-membraneous angina, for which reason a diagnosis of hemorrhagic purpura was at first made. This is frequently the error committed when a blood examination is neglected.

By an examination of the blood a mistaken diagnosis may be avoided, because it at once shows that both forms of acute leukemia, which appear so unlike, the one where enlarged lymph-nodes are apparent, the other giving rise to hemorrhages, are only modalities of the same affection, namely, acute leukemia. The blood of acute leukemia consequently presents certain characters of the highest importance, the dominating one being lymphocytosis. In order that this lymphocytosis may be of value, it is not necessary that it be absolute, that is to say, that the total number of lymphocytes must be very greatly increased. Thus Jeanselme and Weil found 1,453,000 red cells and 4,400 lymphocytes. But in such a case the proportion of lymphocytes in relation to the polynuclears is greatly increased and may attain 80%, while normally the proportion is just the reverse. What characterizes leukemia is the lymphocytosis, while the decrease in number of the red cells is of secondary importance as far as diagnosis is concerned.

PREVENTION OF TUBERCULOSIS IN ILLINOIS.

IT is always a satisfaction to note the increasing attention being given by boards of health, as well as by individuals, to the subject of the prophylaxis of tuberculosis. Not long since we commented on certain pamphlets relating to this and certain other matters of public hygiene sent out by the Oregon State Board of Health, so worded as to be intelligible to the laity, for whom they were, in fact, primarily intended. Within a few days there has come into our hands a pamphlet of similar sort entitled, "The Cause and Prevention of Consumption," sent out by the State Board of Health of Illinois. This pamphlet again is intended for the information of the public, and incidentally gives certain facts relating to the disease which are of wide general interest. During the past two years this board of health has been conducting careful researches on the prevalence of tuberculosis in Illinois, from which it has been learned that in that state consumption was responsible for more deaths than typhoid fever, scarlet fever, diphtheria, all forms of bronchitis, influenza, whooping cough, measles and smallpox combined. In 1903 seven thousand persons died from the disease, of whom forty-five hundred were between the ages of twenty and fifty. This fact means an estimated loss to the state each year of about thirty-six million dollars. The investigation also led to the conclusion that the disease is curable within the state, and it, therefore, urges the establishment of hospitals for tuberculosis which has hitherto not been granted by the legislature. In the pamphlet, which it is hoped may ultimately be in the hands of every citizen in the state, the early symptoms of the disease are narrated at some length, with the expectation that popular knowledge in this regard may lead to an earlier medical examination and consequent early treatment. The usual rules which the consumptive should observe regarding himself and also regarding his neighbors are laid down under prominent headings in unmistakable language. As we have repeatedly said in the past, we have no question that this method of disseminating knowledge, properly supervised, will ultimately lead to excellent results. Popularizing a disease, as it were, naturally detracts in great measure from its terrors, and if all classes in the community could be made to feel that incipient tuberculosis, while serious, is by no means fatal, we have no doubt that the campaigns of extermination would rapidly progress. Toward this end the various circulars, to which we have, from time to time, called attention, are certainly tending.

MEDICAL NOTES.

GUARDING AGAINST THE MOSQUITO. — It is reported that 100,000 yards of wire gauze are required by the Panama Canal Commission to guard against the inroads of mosquitoes during the work on the canal. It is said that 20,000 yards will be required for the hospitals and 75,000 yards for screening the houses along the canal. Steel wire galvanized screens are recommended.

DEATHS IN RAILWAY ACCIDENTS. — As stated by the Interstate Commerce Commission the railways of the United States for the fiscal year ending June 30, 1903, carried 694,891,353 passengers. The casualties for the year numbered 86,393, including 9,840 killed and 76,553 injured.

CHICAGO'S DEATH-RATE. — According to the Bulletin of the Chicago Health Department, Chicago's decreasing death-rate, which has been almost 29% since 1893 from the average of the previous ten years, is due almost wholly to the sanitary education of the public. The bulletin affirms that the Chicago public is better educated in sanitary matters than that of any other community, through its various local clubs, social settlements and kindred organizations. This statement is interesting, and we are not in a position to criticise it.

IMPERIAL CANCER RESEARCH FUND. — The third meeting of the General Committee of this Cancer Research Fund was held July 8, in London, with the Prince of Wales presiding. The King's sympathy and interest in the work of this organization is such that he has approved the addition of the word, imperial, to the official title. It will, therefore, hereafter be known as the Imperial Cancer Research Fund. The annual report states the character of the work done since the previous official communication. This has consisted in experimental work on the nature and processes of growth of cancer through researches on the lower animals. Among other results of importance is the demonstration of the existence of cancer in wild animals. Cancer has, therefore, been discovered to pervade the whole vertebrate kingdom, presenting constant fundamental characteristics, and it is concluded that

it is not permissible to seek for the causative factors of cancer outside of the life processes of the cell. Investigation bearing upon the diagnosis and treatment of cancer has also been carried out experimentally with as yet incomplete results. The following statistical investigation is also being prosecuted: Hospital statistics; occurrence of cancer in native races of the colonies and out-lying parts of the British Empire; statistics of assurance societes; recorded death-rate in Ireland and Great Britain, and the bearing of the foregoing upon the reputed increase of cancer. The report closes with the statement that there is nothing in the statistical investigation pointing to an actual increase in the number of deaths due to cancer. Little is said of the protozoön origin of the disease. Both the *Lancet* and the *British Medical Journal* of July 16 devote considerable space to a consideration of the foregoing report.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, July 27, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 44, scarlatina 5, typhoid fever 13, measles 30, smallpox 0.

THE GRADUATING CLASS OF HARVARD UNIVERSITY. — It is announced that of this year's graduating class of Harvard University 20 expect to pursue the study of medicine, 121 law, 128 business, 68 each, teaching and scientific pursuits, and the remainder various less popular employments. The contrast between medicine and law, two somewhat collateral professions, is particularly striking. No doubt law promises a more rapid and varied rise to fame.

NEW YORK.

A CENTENARIAN. — Mrs. Hannah Brown of Brooklyn, N. Y., died at the age of one hundred and one years, on July 22, two days after passing her one hundred and first birthday. She was born at Smithtown, Long Island, where her mother lived to be one hundred years old.

BEQUESTS TO HOSPITALS. — By the will of the late Sylvester S. Batton of Newark, N. J., $25,000 is left to charities. Among the bequests are the following: $5,000 each to St. Barnabas Hospital and the Home for Aged Women of Newark, and $5,000 to the Babies' Hospital of the New York Post-Graduate Medical School.

Obituary.

EDWARD W. LAMBERT, M.D.

DR. EDWARD W. LAMBERT, chief medical officer of the Equitable Life Assurance Company, died July 17 in New York. Dr. Lambert was born in Boston in 1831, and for the greater part of his active professional life has been associated with life insurance work. He was graduated from Yale in 1854 and from the College of Physicians and Surgeons in New York in 1857. He later prosecuted his medical studies in Bellevue Hospital, and has since been identified with the city of New York. At the time of his death he was one of the physicians to St. Luke's Hospital and to several smaller hospitals. He leaves a large family, three of his sons being physicians in New York.

Miscellany.

THE JAPANESE AS CHEMISTS.

PROBABLY no Eastern nation is more strongly represented than are the Japanese in the English annals of science, and more particularly in literature on chemistry. They possess an undoubtedly strong faculty for original research, and they combine this faculty with a sharp-sightedness as to the possibilities of practical application of the fruits of research. The Japanese chemist, in fact, unites the power of originality of the English chemist and the practical intuition of the German. At the University of Tokyo practical study is very much favored, and splendid facilities for work are provided in the laboratories and workshops. There are several distinguished Japanese chemists who are Fellows of the English Chemical Society and who were elected to the fellowship on account of the excellence of their contributions to original science. Many elaborate papers involving long and patient laboratory investigation are printed in full in the transactions of the society. The Japanese chemists discuss with a freedom which astonishes the Western chemist all the modern abstruse theories bearing upon the atomic theory, the constitution of matter, the theory of dissociation, and so forth. They write powerful dissertations on the views advanced by such esteemed thinkers as Ostwald, Arrhenius, Van't Hoff, Kelvin, Thomson, Lodge, Crookes, Ramsay and others, and have offered valuable criticisms on the methods of systematizing and compiling atomic weights adopted by Western chemists. Chemistry, of course, is a powerful weapon in war, and there can be little doubt that amongst other things which have so far contributed to Japanese successes is a sound knowledge of explosives, their composition, action and behavior under a variety of conditions. When there is no longer any need for the implements of battle, and may that soon be, we may be pretty sure that the same subtle insight which is so marked a feature of the Japanese intellect will turn with equal success to the application of science to peaceful pursuits. — *Lancet.*

CANCER RESEARCH IN LIVERPOOL.

A CANCER research fund has been established in Liverpool by the munificence of a donor who gave $50,000 as a memorial to his deceased wife. This is administered by a committee, consisting of Professor Carter, Dr. Barr, Prof. Rushton Parker, Prof. F. F. Paul, Prof. R. Boyce and Prof. C. L. Sherrington. A room to serve as a ward laboratory was established for research at the Liverpool Royal Infirmary, where also a number of beds were set aside for the clinical observation of cancer. The council of the University of Liverpool also granted the use of five large rooms in its laboratories for the prosecution of the inquiry. Dr. A. S. Grünbaum was appointed director of the research. He has just issued an interim report, which covers a period somewhat less than a year. Experiments were made with the cytolytic milk of a cow, and when it yielded no more milk, with its serum. Of two cases of cancer of the breast so treated, one was apparently arrested. Three cases of uterine cancer are being treated with horse serum. They all show signs of improvement. Another branch of the inquiry is directed toward the discovery of the cause of cancer. Dr. Grünbaum thinks that combination of causes, and perhaps not always the same combination, is necessary. If once a strain of human cancer can be secured, he says, we shall be appreciably nearer the goal. In the work both the developmental and parasitic hypotheses are kept in view. The recent evidence of the London observations in favor of a germinal theory raises the hope that a comparatively simple physiological cure may be possible, for experimental embryologists can, by simple means, alter the development of germinal cells. To promote interest in the inquiry, 2,000 circulars were sent out to doctors in the north of England and 1,000 to veterinary surgeons. But the responses have not been encouraging. A large number of tumors have been received from various hospitals for examination. Several, mostly malignant, from the horse, cow, sheep, dog, pig, cat, mouse and trout, have also been received. — *Journal of the American Medical Association.*

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, JULY 16, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Cerebro-spinal Meningitis.	Diarrheal Diseases.
New York	3,908,644	1,548	745	43.67	8.00	2.65	1.48	28.29
Chicago	2,021,086	416	115	27.87	6.00	1.44	—	12.73
Philadelphia	1,407,968	483	186	37.05	8.07	1.45	—	19.45
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	542,229	249	109	41.76	2.00	.40	.80	28.51
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	409,645	—	—	—	—	—	—	—
Pittsburg	362,403	161	—	41.61	6.83	4.34	—	23.08
Cincinnati	338,277	—	—	—	—	—	—	—
Milwaukee	325,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	62	26	33.87	.16	—	—	24.19
Boston	617,950	142	35	23.33	11.26	2.11	.70	5.60
Worcester	136,925	32	10	12.50	12.50	—	9.37	.31
Fall River	119,349	55	23	52.72	5.45	—	—	34.54
Lowell	104,402	47	25	36.15	10.63	—	—	23.39
Cambridge	100,998	21	7	33.33	14.28	—	—	19.04
Lynn	73,875	21	4	23.81	14.28	—	4.76	9.52
Lawrence	72,348	23	10	47.82	8.70	—	—	43.48
Springfield	72,020	17	7	17.64	5.88	—	—	11.76
Somerville	70,413	13	—	7.70	—	—	—	—
New Bedford	68,863	21	11	23.81	9.52	—	—	19.05
Holyoke	50,538	25	14	60.00	4.00	4.00	—	36.00
Brockton	46,601	6	1	66.67	—	—	—	16.67
Newton	39,310	7	—	—	—	—	—	—
Haverhill	39,061	8	3	12.50	—	—	—	12.50
Malden	37,293	5	1	40.00	20.00	—	—	—
Salem	37,188	9	4	11.11	22.22	11.11	—	—
Chelsea	36,499	10	0	20.00	10.00	—	—	—
Fitchburg	36,335	8	2	25.00	—	—	—	—
Taunton	34,577	2	0	—	—	—	—	—
Everett	30,209	7	1	14.30	—	—	—	—
North Adams	29,201	8	4	25.00	—	—	—	—
Quincy	26,798	6	—	—	—	—	—	—
Gloucester	26,121	5	—	—	20.00	—	—	—
Waltham	25,797	5	—	20.00	—	—	—	—
Brookline	25,576	2	—	50.00	—	—	—	—
Pittsfield	23,870	—	—	—	—	—	—	—
Medford	21,856	6	—	—	16.67	—	—	—
Chicopee	21,692	9	3	44.44	—	—	—	22.22
Northampton	20,314	11	1	9.09	—	—	—	—
Beverly	15,807	—	—	—	—	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	3	0	—	—	—	—	—
Adams	14,745	5	4	60.00	—	—	—	60.00
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,500	—	—	—	—	—	—	—
Newburyport	14,478	10	0	—	—	—	—	—
Woburn	14,315	2	2	—	—	—	—	—
Melrose	13,819	2	2	50.00	—	—	—	—
Westfield	13,809	4	2	50.00	—	—	—	—
Milford	13,771	—	—	—	—	25.00	—	—
Marlboro	13,609	2	0	—	—	—	—	—
Revere	13,609	3	—	33.33	—	—	33.33	—
Framingham	13,974	9	2	—	—	—	—	—
Peabody	13,406	—	—	—	—	—	—	—
Gardner	12,324	2	—	—	—	—	—	—
Southbridge	11,716	—	—	—	—	—	—	—
Watertown	11,575	4	1	25.00	—	—	—	—
Weymouth	11,350	1	0	—	—	—	—	—
Plymouth	11,189	2	—	—	—	—	—	—

Deaths reported, 3,506; under five years of age, 1,363; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,325; acute lung diseases 252, consumption 344, scarlet fever 14, whooping cough 10, cerebrospinal meningitis 31, smallpox —, erysipelas 6, puerperal fever 9, measles 20, typhoid fever 38, diarrheal diseases 785, diphtheria and croup 68.

From whooping cough, New York 5, Chicago 3, Boston 1, Holyoke 1. From measles, New York 13, Chicago 2, Pittsburg 1, Lowell 3, North Adams 1. From cerebrospinal meningitis, New York 23, Baltimore 2, Boston 1, Worcester 3, Lynn 1, Revere 1. From typhoid fever, New York 10, Chicago 4, Philadelphia 10, Baltimore 1, Pittsburg 10, Boston 1, Somerville 1, Everett 1. From erysipelas, New York 2, Chicago, Philadelpia, Baltimore and Boston 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending July 2, the death-rate was 13.5. Deaths reported 3,953; acute diseases of the respiratory organs (London) 60, whooping cough 102, diphtheria 44, measles 180, smallpox 6, scarlet fever 25.

The death-rate ranged from 5.1 in Tottenham to 22.8 in Hanley; London 12.9, West Ham 11.8, Brighton 14.5, Southampton 8.8, Plymouth 13.7, Bristol 11.2, Leicester 13.0, Nottingham 15.7, Liverpool 17.7, Bolton 14.5, Manchester 19.0, Salford 14.8, Bradford 13.7, Leeds 16.0, Hull 18.1, Sheffield 12.8, Cardiff 10.1, Rhondda 15.8, Wigan 21.6, Merthyr Tydfil 9.3, Willesden 12.6, Birkenhead 16.3.

Correspondence.

THE HARVARD MEDICAL SCHOOL FROM A LAYMAN'S STANDPOINT.

BOSTON, July 15, 1904.

MR. EDITOR: The following conversation was overheard in an electric car on Huntington Avenue in the early summer.

"Oi say, mishter! Oi want to ask you phwat that building is. There, that one."

"That, madam, is a school-house."

"No, no! I know that, me children goes there to school. Phwat is the building beyant?"

"That is the Harvard Medical School."

"But he is on Boylston Street."

"Yes, but is going to move here."

"Och! poor thing! and must he move just loike us poor critters, because he can't pay his rint?" W.

METEOROLOGICAL RECORD.

For the week ending July 16, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 10	29.97	66	69	62	89	97	93	E	E	6	4	O.	O.	T.
M. 11	29.80	74	84	64	86	87	86	W	S	6	9	F.	C.	0
T.. 12	29.66	76	83	70	84	86	85	S W	S	10	13	O.	C.	0
W. 13	29.78	70	79	61	85	59	72	W	N	10	14	R.	C.	.07
T.. 14	30.08	69	80	58	64	77	70	N W	S W	10	5	C.	F.	0
F.. 15	30.06	74	83	64	63	59	61	W	S W	8	16	O.	O.	T
S.. 16	29.93	78	88	68	75	87	81	S W	S	14	12	F.	F.	.11
	29.90		81	64			78							.18

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Mean for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JULY 23, 1904.

C. M. DEVALIN, passed assistant surgeon. Detached from the "Albany" and ordered home to wait orders.

W. N. MCDONELL, acting assistant surgeon. Detached from the "Glacier" and ordered to the "Marcellus."

P. F. MCMURDO, acting assistant surgeon. Detached from the "Gloucester" and ordered to the Navy Yard, League Island, Pa.

W. H. BLACK, acting assistant surgeon. Detached from the Navy Yard, N. Y., Aug. 12, and ordered to the Naval Station, New Orleans, La.

E. S. BOGERT, Jr., surgeon. Orders of July 15 modified, ordered to continue duty at the Naval Academy.

L. W. CURTIS, surgeon. Detached from the "Buffalo" and ordered home to wait orders.

E. G. PARKER, passed assistant surgeon. Detached from the "Wheeling" and ordered to the "Buffalo."

R. L. SUTTON, assistant surgeon. Detached from duty with the Marine Battalion on the Isthmus of Panama and ordered to the Naval Hospital, New York, N. Y., for treatment.

C. C. GRIEVE, assistant surgeon. Detached from the Naval Station, Cavite, P. I., and ordered to the Naval Station, Guam, L. I.

D. C. CATHER, assistant surgeon. Appointed assistant surgeon, with rank of lieutenant, jr. grade, from July 9, 1904.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JULY 14, 1904.

STONER, J. B., surgeon. To proceed to Ocean City, Md.; Chincoteague and Wachapreague, Va., for the physical examination of certain keepers and surfmen of the Life Saving Service. July 9, 1904.

GUITERAS, G. M., surgeon. Granted leave of absence for seven days from July 14. July 11, 1904.

GRUBBS, S. B., passed assistant surgeon. To proceed to Moss Point, Miss., for special temporary duty. July 12, 1904.

BILLINGS, W. C., passed assistant surgeon. Department letter of March 28, 1904, granting Passed Assistant Surgeon Billings leave of absence for two months and three days, amended to read one month and twenty-eight days. July 8, 1904.

KORN, W. A., assistant surgeon. Relieved from duty at Philadelphia, Pa., and directed to proceed to Perth Amboy, N. J., for duty. July 12, 1904.

AMESSE, J. W., assistant surgeon. Department letter of March 26, 1904, granting Assistant Surgeon Amesse leave of absence for two months and fifteen days, amended to read two months and eleven days from May 1. July 9, 1904.

GLOVER, M. W., assistant surgeon. Granted leave of absence, on account of sickness, for seven days. July 13, 1904.

BAHRENBURG, L. P. H., assistant surgeon. Relieved from duty at Chicago, Ill., and temporary duty at Evansville, Ind., and directed to proceed to Delaware Breakwater Quarantine, and report to the medical officer in command for duty and assignment to quarters. July 9, 1904.

STIMSON, A. M., assistant surgeon. Upon being relieved at New Orleans, La., by Assistant Surgeon E. M. Steger, to proceed to Washington, D. C., and report to the director of the Hygienic Laboratory for duty. July 12, 1904.

WARD, W. K., assistant surgeon. Upon being relieved at Reedy Island Quarantine by Assistant Surgeon G. L. Collins, to proceed to Washington, D. C., and report at the Bureau for instructions preliminary to assignment to duty in the office of the United States consul at Bridgeton, Barbadoes, British West Indies. July 12, 1904.

ROBERTS, NORMAN, assistant surgeon. Relieved at New Orleans, La., and directed to proceed to Evansville, Ind., and assume temporary charge, relieving Assistant Surgeon L. P. H. Bahrenburg. July 9, 1904.

COLLINS, G. L., assistant surgeon. Relieved from duty at Ellis Island, N. Y., and directed to proceed to Reedy Island Quarantine and report to the medical officer in command for duty and assignment to quarters, relieving Assistant Surgeon W. K. Ward. July 12, 1904.

STEGER, E. M., assistant surgeon. Relieved from duty at Ellis Island, N. Y., and directed to proceed to New Orleans, La., and report to medical officer in command for duty in connection with the examination of aliens, relieving Assistant Surgeon A. M. Stimson. July 12, 1904.

BROWN, B. J., JR., acting assistant surgeon. Granted leave of absence for twenty-one days from July 8. July 9, 1904.

CLEAVES, F. H., acting assistant surgeon. Granted leave of absence for twenty-three days from July 8. July 7, 1904.

GOLDSBOROUGH, B. W., acting assistant surgeon. Granted leave of absence for three days from July 13. July 9, 1904.

GREGORY, G. A., acting assistant surgeon. Granted leave of absence for seven days from July 5. July 9, 1904.

KEATLEY, H. W., acting assistant surgeon. Granted leave of absence for two days from July 8, 1904, under paragraph 210 of the regulations.

SAVAGE, W. L., acting assistant surgeon. Granted leave of absence for thirty days from Aug. 1. July 8, 1904.

STEVENSON, J. W., acting assistant surgeon. Granted leave of absence for ten days from July 11. July 13, 1904.

TAPPAN, J. W., acting assistant surgeon. Granted leave of absence for thirty days from July 11. July 6, 1904.

WELDON, W. A., acting assistant surgeon. Granted leave of absence for thirty days from July 8. July 13, 1904.

ALLEN, G. C., pharmacist. Granted leave of absence for thirty days from July 13. July 12, 1904.

BOARDS CONVENED.

Board convened to meet at Washington, D. C., July 11, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General G. T. Vaughan, chairman; Assistant Surgeon A. J. McLaughlin, recorder.

Board convened to meet at the Marine Hospital, Baltimore, Md., July 12, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Assistant Surgeon C. W. Wille, chairman; Acting Assistant Surgeon J. G. Evans, recorder.

SOCIETY NOTICES.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS. — The American Association of Obstetricians and Gynecologists will hold its seventeenth annual meeting at the Hotel Monticello, St. Louis, Tuesday, Wednesday, Thursday and Friday, Sept. 13, 14, 15 and 16, 1904.

AMERICAN NEUROLOGICAL ASSOCIATION. — The American Neurological Association meets at St. Louis at the Planters Hotel, instead of in the World's Fair Grounds as orginally planned. The sessions will last from 9 A.M. to 1 P.M. daily. A general invitation to attend is extended to the medical profession.

RECENT DEATHS.

DAVID J. FITZGERALD, M.D., a prominent physician of northern New York, died at his home at Glens Falls, on July 17, of cerebral apoplexy. He was a native of Ireland, and forty-six years of age. He came to this country when young, and was graduated from the Fort Edward Collegiate Institute in 1876. In 1884 he was graduated from the Albany Medical College, after which he studied for a time at the New York Post-Graduate Medical School and Hospital.

GEORGE V. WENNER, M.D., of Milford, N. J., died, on July 19, from an overdose of cocaine. It is stated that for some time he had been experimenting on his own person with the drug, with a view to discovering the best means of antagonizing its toxic effects, and that he left a number of records of his observations. Dr. Wenner was forty years of age, and a graduate of the Medico-Chirurgical College of Philadelphia.

Original Articles.

OPERATIONS UPON BENIGN DISEASES OF THE STOMACH AT THE BOSTON CITY HOSPITAL AND MASSACHUSETTS GENERAL HOSPITAL 1898–1903 INCLUSIVE.*

BY F. B. LUND, M.D., E. P. JOSLIN, M.D., AND F. T. MURPHY, M.D., BOSTON.

I. INTRODUCTION.

II. OPERATIONS FOR CHRONIC GASTRIC ULCER, PYLORIC OBSTRUCTION AND ACUTE GASTRIC DILATATION.
Summary and Conclusions Followed by Reports of Cases.

III. OPERATIONS FOR PERFORATION OF GASTRIC ULCER.
Summary Followed by Reports of Cases.

IV. OPERATIONS FOR GASTRIC HEMORRHAGE.
Summary Followed by Reports of Cases

V. GENERAL CONCLUSIONS.[1]

I. INTRODUCTION.

THE object of this paper is to review the surgery of benign diseases of the stomach at the two large hospitals in Boston during the last six years. Not long ago the medical aspect of ulcer of the stomach[2] at one of the hospitals was critically studied by a physician and surgeon, and it seemed fitting that the surgical side of the question should be as impartially treated. The above paper showed that the immediate success attending medical treatment of ulcer of the stomach in Boston was far below that usually given in the literature. Fifty-five per cent of the patients were discharged well from the hospital in contradistinction to Leube's 74% cured.[3] The ultimate results were still worse, and demonstrated that 56% of the ulcer patients were either dead, or had had stomach trouble referable to the ulcer since their discharge from the hospital. It is with patients similar to this 56% of medically unsuccessful cases that this paper deals. While the results are not as favorable as have been elsewhere reported, they represent the facts. Furthermore, they show the condition of the patient some time after the operation and not the immediate result alone. In the opinion of the writers the next six years will show remarkable improvement in this branch of surgery.[4]

* Read in part at a meeting of the Surgical Section, Suffolk District Medical Society, January 6, 1904.

[1] At a meeting of the Surgical Section of the Suffolk Branch of the Massachusetts Medical Society, held last winter, the question of operation in benignant gastric disease was discussed, and at its conclusion the suggestion was made that the results of the operations at the two large hospitals in Boston be combined and published. The writers are indebted to the chairman, Dr. F. B. Harrington, and the secretary, Dr. E. A. Codman, for permission to use the statistics of the Massachusetts General Hospital, which had been partially compiled for them by one of the writers, and to the Surgical Staff of the Boston City Hospital for permission to record their cases.

The writers further wish to express their appreciation of the kindness of Dr. Arthur T. Cabot, who read the manuscript before it was sent to the printer.

[2] Gastric Ulcer at the Massachusetts General Hospital, 1888–98. Greenough and Joslin. Amer. Jour. Med. Sci., August, 1899.

[3] Centralbl. f. Chirurgie, 1897, No. 28, p. 66.

[4] Should it meet with the approval of the surgeons at the Boston City Hospital and the Massachusetts General Hospital, it is the intention of the writers to record yearly the condition of all patients operated upon for benignant gastric disease since Jan. 1, 1898.

ANALYSIS OF THE STRICTURES OF THE PYLORUS. PYLORIC OBSTRUCTION.

Number of cases	21	
Number of recoveries	16	76.2%
Mortality	5	23.8%
Present condition: well	9	42.9%

On analyzing the fatal cases, we find that there were two fatal cases of pyloroplasty for stricture of the pylorus, Cases 3 and 17. We find that Case 3 had been exhausted by five years of vomiting and hemorrhage, and had had three terms of medical treatment during that time. She was in very poor condition for operation, and died on the fourth day, without recovering from shock.

Case 17 was of similar character, being that of a woman who had had daily vomiting and suffered daily stomach washings for a year, and had lost 40% in weight. She almost succumbed to shock on the table, and died on the fifth day of pneumonia.

As to permanent results of the pyloroplasties for stricture, Cases 8, 5 and 7 are classed as cured.

Case 8, a man who was in truly desperate condition at hour of operation, was well and at work four years after operation.

Case 5 was well four years after operation, and had worked steadily since.

Case 7 had vomiting and lived on soft solids for three years after operation, but in March, 1904, reported well.

As relieved are classed Cases 1, 2 and 4.

In Case 1 the relief only lasted a few months. In this case a further operation (gastro-enterostomy) ought to be considered.

In Case 2 relief after operation remained till two years later, when she died after removal of a ureteral calculus.

Case 4 was at work four years after operation, but obliged to live on soft solids.

Case 18 was not relieved.

In considering these cases in which relief was only temporary or did not occur, we must remember that the method of Heineke-Mickulicz, owing to the danger of recontraction, has been replaced by the gastro-duodenostomy of Finney, which affords a much larger opening and one much less likely to recontract. In these cases not relieved further operative procedure ought to be considered, as no other treatment affords any prospect of relief.

Of the gastro-enterostomies for pyloric stricture, ten in number, six are classed as cured, Cases 20, 37, 43, 10, 25 and 38.

Case 20, emaciated to the last degree at time of operation, was in good health, and had gained forty-nine pounds three years after operation.

Case 37 was well and at work five months after operation.

Case 43 was well six week after operation.

Case 10 was well at discharge from hospital.

Case 25 reported well three years after operation.

Case 38 reported well eighteen months after operation.

Of the gastro-enterostomies for pyloric stricture, there were three deaths, — Cases 13, 29 and 36.

Case 13 was operated upon twelve weeks after swallowing carbolic acid. Here probably faulty method was the cause of death, as no shock followed operation, but persistent vomiting. Anterior operation with the Murphy button was done. It is a question whether the opening was not made too high in the stomach. Case 29 was exhausted and emaciated. He had had seven weeks treatment in medical wards, and died. Died probably of shock after a quick anterior button operation. Case 36 died of inhalation pneumonia.

As not relieved are classed Cases 24, 26, 32.

Case 24 had a sponge removed six months after discharge, and pain and vomiting continued two years after operation (error in technique).

Case 26 "no better" two years after operation.

Case 32 died one month after discharge, and autopsy showed contraction of opening.

ANALYSIS OF THE CHRONIC ULCERS.

Number of cases	21	
Number of recoveries	16	76.2%
Number of deaths	5	23.8%
Present condition: well	7	33.3%

Review of the operations for chronic ulcer, 21 in number, shows that excision of the ulcer was done three times with no deaths; pylorectomy twice, both cases proving fatal; gastro-enterostomy 15 times, with 3 deaths; gastro-duodenostomy twice, with no deaths.

The fatal cases of gastro-enterostomy were Cases 16, 30 and 41.

Case 16 died on the fourteenth day of circular vomiting, constriction of the descending loop by the opening in the meso-colon, which was thickened by old adhesions and was not sutured to the stomach wall. This was an error in technique.

Case 30, a chronic alcoholic, died of delirium tremens.

Case 41. In this case the omentum adherent in the pelvis had to be tied off. A large portion tied with a coarse silk ligature became adherent to the line of union between the stomach and intestine and caused circular vomiting. An error in technique.

Of the pylorectomies, Case 12 died of shock after a difficult operation which was performed under the impression that the case was one of carcinoma. A gastro-enterostomy would have been, probably, a safer procedure.

In Case 19 a pylorectomy was also done, owing to supposed malignancy. Here, also, a gastro-enterostomy might have been preferable.

As cured of the excisions are classed Cases 9 and 11.

Case 9 was well three or four months after operation.

Case 11 required a year for convalescence, but worked after that steadily till the present, three years after operation, when he is well.

Case 22 is unrelieved, though a second operation showed the gastro-enterostomy to be patent.

Case 23 is no better than before operation.

Case 35 is classed as not relieved, his pain and distress having returned five months after operation.

Of the gastro-enterostomies, five are classed as cured, — Cases 21, 28, 34, 39 and 42.

Case 21 was in fine condition two years after operation.

Case 28 was well fourteen months after operation.

Case 34 was well six months after operation.

Case 39 in excellent condition four months after operation.

Case 42 in excellent condition two months after operation.

As relieved are classed three cases, — 14, 15 and 31.

Case 14 after relief for some time died of carcinoma, probably originating in the old ulcer, sixteen months after operation.

Case 15 had more or less vomiting for two years, but improved and was able to do her work. In February, 1904, three years and four months after operation, there was return of vomiting and bloody stools.

Case 31 (a case of perforation prevented by adhesion to anterior abdominal wall) had an abscess of the lung three months after operation, and died six months later.

As "not relieved" are classed Cases 40 and 33.

Case 40, a case of gastric tetany, from chronic ulcer, had successively a gastro-pexy, gastro-enterostomy, entero-enterostomy and gastro-duodenostomy (Finney) performed, and five months later was vomiting and still in hospital in poor condition.

Case 33 was better for four months, but later had return of vomiting and distress, and six months after operation was in poor condition.

Of gastro-duodenostomies, Case 27 is classed as relieved, which was her condition on leaving the hospital. No subsequent report.

Case 6, an acute dilatation of the stomach, was fatal, and is classed alone.

REMARKS AND CONCLUSIONS.

On review of these cases of the surgery of benign disease of the stomach, we find that we have in all of them been dealing with conditions which have been obstinate and irremediable by medical treatment. In stricture of the pylorus we have been dealing with a mechanical condition curable only by mechanical, that is, operative procedures. The final results fall into the classes given above, — a class who were cured, that is, restored to perfect health for a long period, those who were temporarily relieved, a small number who were not relieved, and the fatal cases.

In estimating the advantages which operation offers at the present time, we must take into consideration several facts. First, that these cases have been the early cases, operated upon during

the developmental period of gastric surgery in a conservative community. The technique has been in many instances faulty, owing largely to the inexperience of the operators, which was unavoidable. Lack of belief in the favorable results of surgical intervention has influenced the medical consultants to delay too long in calling in surgical consultation, and the surgeon himself has in many instances felt it so necessary to assure himself of the absolute necessity of undertaking an operation of such supposed magnitude that he too has lost valuable time and wasted the strength of his patients.

During the period that these operations have been done, the surgery of the stomach has progressed under the leadership of men who have devoted themselves to its study and practice, notably, Robson, Moynihan, Mayo, Mickulicz and Finney, until gastro-enterostomy and gastro-duodenostomy have become simple and safe procedures in the hands of those who are interested sufficiently in this subject to keep abreast of the modern technique. A knowledge of the pathological appearances *in vivo*, sufficient to enable the surgeon to decide accurately at the time of operation what measures to adopt, is also the reward of special attention and study of gastric surgery.

Medical clinicians who have interested themselves in the stomach are learning to differentiate those cases which are amenable to surgical treatment while there is yet time and opportunity for surgical aid; in other words, are alive to the advantages offered by surgery in suitable cases. Under these improved conditions the prospects for those patients suffering from stricture of the pylorus and chronic ulcer of the stomach are daily becoming brighter. Distrust and jealousy on the parts of both medical men and surgeons of each other's methods and results have in the past done much to limit the field of surgery, and miscalled conservatism, which conserves everything but the health of the patient, has also contributed to the bad results. Only by early consultation, courtesy, confidence and good faith on the part of physician and surgeon can this undesirable state of things be avoided. Its avoidance in the future will mean much to those afflicted with benign disease of the stomach.

Modern surgical technique, and, in particular, posterior gastro-enterostomy by the method of Moynihan, and the gastro-duodenostomy of Finney, have shortened the convalescence and improved the final results in gastric surgery enormously.

The judicious application of these procedures in the cases narrated in this paper might have lessened the mortality, increased the class of cures and diminished the number of those not relieved, besides shortening the immediate surgical convalescence of many.

II. Operations for Chronic Gastric Ulcer, Pyloric Obstruction and Acute Dilatation of the Stomach.

Name and Date	Sex	Age	Symptoms and Description	Condition Found Operation	Result	Remarks
J. Q. July, 1898. 1	F.	53	Gastric trouble for 5 years. Pain. Vomiting, without blood, of large quantities of old food. Stomach holds 3 quarts.	Stenosis of pylorus from thickened wall and adhesions. Pyloroplasty.	Disch. much rel'd.	Comfortable for some months after operation, then vomiting returned. "A living skeleton."
M. R. Aug., 1898. 2	F.	39	Gastric symptoms for 13 years. Vomiting, without blood, pain after eating. Peristaltic waves seen in epigastrium.	Pylorus stenosed, so that it will admit only a lead pencil. Gall bladder full of stones. Pyloroplasty. Gall bladder drained.	Well.	Second operation Dec. 23, 1899. Adhesions around pylorus divided. Well till Feb. 2, 1901, when she died after removal of calculus from ureter.
M. C. Sept., 1898. 3	M.	43	Burning pain in epigastrium and vomiting for 5 years. Loss of 45 pounds in weight. In bed at various periods, 5 to 6 weeks at a time. Three times in hospital for medical treatment. Hematemesis at various times. Stomach capacity, 5 pints. Free HCl. Had been relieved by treatment on medical side, but relapsed.	Stomach dilated and pylorus thickened. Pyloric opening size of lead pencil and not dilatable. Heineke-Mickulicz pyloroplasty.	Died. Sept. 15, in 4 days.	Shock followed operation and active stimulation employed. No vomiting. Gradual loss of strength, and death on fourth day.
N. H. Jan., 1899. 4	F.	28	Probable gastric ulcer 14 years previous. Since then chronic indigestion. Symptoms more acute for 3 months. Vomiting of old food, epigastric pain p. c.	Stenosis of pylorus and hour-glass stomach. Pyloroplasty and gastroplasty.	Disch. much rel'd.	Well for about a year. Since has had three attacks of pain and vomiting of 3 to 4 weeks' duration. Is now at work, but lives on soft solids.

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Results	Remarks
C. D. G. Feb., 1899. 5	M. †	48	Swallowed muriatic acid 10 months past. Since then classical symptoms of pyloric obstruction.	Stenosis of pylorus. Pyloroplasty.	Disch. much rel'd.	Digestion good. Worked steadily since discharge.
H. C. Feb., 1899. 6	F.	19	Indefinite history of injury 14 months before by striking the epigastrium against a curbstone. Since then much distress with gas and after eating special food. Distress had been irregular. No vomiting of blood. The history suggested a neurotic tendency. Abdominal examination negative. Vomitus contained lactic acid but no free HCl. For 3 weeks irregular attacks of vomiting and epigastric pain. Feb. 15 a sudden collapse occurred. In the left hypochondrium a large tumor appeared.	Before operation a stomach tube was passed and failed to reduce the size of the tumor. At operation the stomach was found much dilated. Under ether a second attempt was made to empty the stomach by a stomach tube, but without success, though apparently no obstruction by stricture. On opening the stomach about a gallon and half of yellow fluid escaped. Gastro-enterostomy by Murphy button.	Died 3 days after oper'n.	Condition at end of operation very poor. On the third day after operation a mass similar to that found before operation appeared in the left hypochondrium. No relief from the passage of stomach tube. Collapse and death. No autopsy.
G. Z. 1899. Mar., 7	M. †	54	Chronic gastric trouble for years. For 10 months unable to work. Had vomited and passed blood by rectum.	Pylorus buried in adhesions, thickened walls causing stenosis. Pyloroplasty.	Disch. rel'd.	No work for 1 year, 5 months. March, 1901: Returned to hospital with pain in stomach and dark stools and vomitus. May, 1903: Improving. Some vomiting, without blood. Lives on soft solids. Able to work. March, 1904, well.
L. L. Nov., 1899. 8	M. †	39	Two years before operation symptoms began with epigastric pain and much vomiting. Grew worse constantly. Now much epigastric pain, vomits everything he eats. Vomitus generally dark, once or twice slightly tinged with blood. Free HCl. absent. Lactic acid present. Stomach capacity 37 oz. Lower border at umbilicus. Patient much emaciated.	Pylorus small, thickened, and opening admitted only a director. No ulcer found. Heineke-Mikulicz pyloroplasty. No shock.	Rel'd.	Dec. 31, 1903, was in fine condition. Had worked steadily since leaving the hospital.
J. S. Nov., 1900. 9	M.	37	Indigestion for one year. For last two weeks very uncomfortable, epigastric pain so severe that he was unable to eat. For two days vomited "coffee ground" material, and continued to vomit in spite of feeding. Nodule felt in pyloric region. Patient pale and emaciated. Free HCl. absent. Lactic acid present.	A large ulcer with much indurated elevated edges 2 in. in diameter on lesser curvature, ¾ in. from pylorus. Malignancy suspected. Ulcer excised. Hemorrhage controlled by continuous silk suture. Plastic to prevent narrowing on pyloric side. Resection of healthy tissue around ulcer was free on account of suspected malignancy.	Rel'd.	Disch. from hospital Jan. 16, 1900. Reported well soon after leaving hospital, when he moved to Philadelphia, where he could not be traced.
J. M. Feb., 1901. 10	M. †	31	Epigastric pain. Vomiting begun 9 years past. Gradually grew worse. Pain independent of food, but increased by lying on right side. Operation, — anterior gastro-enterostomy (Murphy button) — gave relief for about 2 years. Then old pain returned.	First operation, many adhesions and pylorus stenosed. Question of T. B. peritonitis. Anterior gastro-enterostomy. Murphy button.	Disch. Rel'd.	Second operation. Stricture of pylorus as before. Gastro-enterostomy opening had contracted to size of tip of little finger. Gastro-enterostomy (McGraw) at site of former anastomosis. Well Feb., 1904.
H. S. June, 1901. 11	M.	32	Symptoms began 6 months ago with sudden attack of faintness, epigastric pain, and vomiting. These attacks were frequently re-	Pylorus contracted too much to admit tip of finger. Ulcer extending ¾ inch along greater curvature. Excision of ulcer	Rel'd.	Convalescence 1 year, but since has worked steadily and without gastric discomfort.

CASE 11. — *Continued.*

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Result	Remarks
			peated and obliged him to leave off work for varying periods. Hematemesis occasional. Had six weeks careful hospital treatment without marked improvement. Pale, emaciated, slight epigastric tenderness.	and stricture, involving almost a complete pylorectomy, only a small strip being left posteriorly. Pyloroplasty.		
J. H. B. July, 1901. 12	M.	30	Three years previous to entrance sharp pain in the right hypochondrium. Vomiting. In following year and also one year ago had a similar attack. Three months ago — was seized with acute abdominal pain, lasting four weeks. Since getting up has had daily attacks of epigastric pain and much distress from gas. Vomiting in night. No hematemesis. Stomach holds 88 oz., and in the first washing considerable coffee-ground material. Visible peristalsis at times. Free hydrochloric and lactic acid present. Medical treatment was tried for eight days, and patient grew steadily worse. Exploration of stomach resulted in temporary relief. Numerous firm adhesions about the pylorus and the pylorus thickened. Improvement continued for 6 or 8 months. Three months after the operation had gained 45 pounds. Symptoms reappeared, and for 3 weeks before entrance there had been daily vomiting, ¾ hour after eating.	Under ether a mass in the region of the pylorus was palpable. At operation this pyloric mass was thought to be carcinoma. Pylorectomy was done, and in the operation the surrounding tissues and vessels were badly traumatized. Union, end-to-end, was accomplished by means of a Murphy button. Death all but occurred on the table.	Died within a few hours after oper'n.	No autopsy.
J. P. Aug., 1901. 13	M. †	61	Entered medical service July 5, 1901. Symptoms dated from 7 weeks before, when he had swallowed strong carbolic acid. Epigastric pain, vomiting continued in spite of medical treatment. He did not improve, and was transferred surgical on Aug. 6. Pale, emaciated. HCl. absent. Lactic acid present. Stomach holds 21 oz.	Pylorus thickened, and opening barely admitted a director. Gastro-jejunostomy with a Murphy button (anterior). No shock.	Died seventh day.	Vomited for 10 days until relieved by lavage. Then vomiting recurred, and gradually failed.
E. F. Sept., 1901. 14	F.	44	"Dyspepsia" for 3 years. Eighteen months ago fainted, and vomited a cupful of blood. Had rectal feeding for 3 weeks. After this epigastric pain. No melena. Vomiting, but not of blood since first attack. No loss of weight. Pale, tender below left costal margin, and some general abdominal tenderness. Free HCl. present. No lactic acid. Normal blood in stomach contents.	Pale, indurated ulcer on anterior wall, about midway of lesser curvature. Posterior gastro-enterostomy.	Rel'd.	In Jan., 1903, patient was explored for intestinal obstruction (partial), and carcinoma of peritoneum, stomach, omentum, colon, etc., found, probably having started from the old ulcer.
J. H. Sept., 1901. 15	F.	28	Since youth has had nausea and epigastric pain, vomiting usually after eating. Three years ago vomited blood, fainted and had bloody stool. Several simi-	Omentum found adherent to old laparotomy wound. Tied off and released. Pylorus admitted finger. No ulcer found at operation. Posterior	Rel'd.	Had more or less vomiting for two years after operation, but improved much in general condition, and was able

CASE 15. — *Continued.*

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Result	Remarks
			lar attacks since. Has lost considerable weight and noticed a tumor in epigastrium. Pale, emaciated. Tender mass felt in left epigastric region. Free HCl. present. Capacity, 920 cc. Laparotomy 4 years ago for disease of ovary.	gastro-enterostomy. No shock.		to do her work. Early in Feb., 1904, vomited for a week, with much pain in the stomach. Clots of blood in the stools.
E. S. Oct., 1901. 16	F.	19	For 4 months sharp epigastric pain and vomiting after every meal. Has fainted and suffered from dizziness and dyspnea. No hematemesis. No melena. Treatment in medical ward for 5 weeks with improvement, then relapsed, and vomited blood after solid food. Pain returned. Very anemic and weak. Systolic murmur at base.	Indurated area on greater curvature close to pylorus. Posterior surface of stomach adherent to transverse meso-colon by old fibrous adhesions. Cicatrix on posterior surface of stomach. Meso-colon considerably thickened. Posterior gastro-enterostomy. Opening in meso-colon not sutured to stomach wall.	Died in 14 days.	Did well for 4 days, except for occasional bilious vomiting. Then vomiting became severe and was not relieved by lavage. Grew quite weak, and on fourteenth day entero-enterostomy was done with the Murphy button. Operation showed obstruction of descending loop by thick edge of transverse meso-colon which had slid laterally. Death 8 hours after entero-enterostomy.
H. E. C. Dec., 1901. 17	M. †	50	Twenty-three years before entrance he had nervous dyspepsia and for two years much discomfort from gas. Since then stomach has been delicate. In 1899 jaundice, lasting for 2 months, and gallstones in the stools. Since 1900 there had been frequent attacks of pain in right hypochondrium. For 1 year stomach symptoms have been decidedly worse. Daily vomiting, often very large amounts of old food. Almost daily stomach washings. Weight has gone from 140 to 85½ pounds in the last 12 months. Visible peristalsis below umbilicus. Stomach held 58 oz. Analysis of contents showed the presence of free HCl acid. Hemaglobin 65%; white cells, 6,400. Was kept on medical treatment for 15 days, during which time he gained weight, but treatment did not relieve the evident pyloric stenosis.	Pylorus buried in adhesions, walls thickened and lumen constricted. Pyloroplasty.	Died 5 days after oper'n.	Autopsy showed a stenosis of the pylorus, due to an ulcer which extended out into the duodenum. The stitches of the pyloroplasty were holding and apparently the obstruction had been relieved. Also a pneumonia, which was cause of death.
L. Q. T. Feb., 1902. 18	M. †	43	For 20 years had had difficulty in emptying stomach. No vomiting, no pain. Stomach held 50 oz.	Lumen of pylorus small. No induration. Pyloroplasty.	Disch. rel'd.	"I am just as bad now as I was before the operation."
J. C. Apr., 1902. 19	M.	42	For 4 years symptoms of pyloric obstruction, — epigastric pain, vomiting of large quantities of old food, sometimes with blood. Stomach held 64 oz. Had lost 25 pounds.	Indurated mass at pyloric end of stomach on the anterior surface. Thought to be malignant. Pylorectomy, with end-to-end suture.	Died 9 days after oper'n.	The course after operation was uneventful until the seventh day, when a gastric fistula developed. Death 2 days later. No autopsy.
G. P. L. Apr., 1902. 20	M. †	41	For 15 years epigastric pain and vomiting, growing gradually more frequent. Excessive hematemesis on 2 occasions within 10 years. Vomitus constantly coffee colored. Has had hospital treatment for two periods	Pylorus much constricted. Lower border of stomach below umbilicus. Anterior gastro-enterostomy by silk suture.	Rel'd.	Had no gastric disturbance after leaving hospital. In Jan., 1904, was in perfect health and weighed 140 pounds, a gain of 49 pounds since the operation.

CASE 20. — *Continued.*

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Result	Remarks
			of several weeks. Much loss of weight. Now weighs 91 pounds. Much emaciated, pale. Lower border of stomach 2 inches below umbilicus, and peristalsis of stomach visible through abdominal wall. Free HCl. absent. Lactic acid, trace.			
D. C. July, 1902. 21	F.	48	Pain in left hypochondrium, eructation and occasional vomiting for 8 to 10 years. Four weeks before operation copious bloody vomiting, preceded by 10 days of severe nausea and anorexia. After this, bloody vomiting for 5 days. Pale, emaciated, epigastric tenderness.	Stomach appeared normal. Ulcer not found. Anterior gastro-enterostomy with suture. Pylorus patent and not thickened.	Rel'd.	Convalescence complicated by a parotitis which required incision. Left hospital Sept. 3 in good condition, with no gastric symptoms. Jan. 4, 1904, reported to be in fine condition.
T. McG. July, 1902. 22	M.	44	Headache and vomiting for 15 months. Vomited 5 to 12 times daily. Had been unable to work for over 6 months.	A few adhesions, but no definite induration about pylorus. Anterior gastro-enterostomy (McGraw).	Disch. rel'd.	Return of pain and vomiting, which have continued, despite a second operation, which showed patent anastomosis, and a third in which pus was evacuated.
J. L. July, 1902. 23	M.	41	Constant epigastric pain for 1½ years. Pain increased by taking food. Examination negative.	First operation 7 months after onset of symptoms; an exploratory laparotomy gave no relief. Second operation 10 months later. A few adhesions separated. No definite induration about pylorus. Anterior gastro-enterostomy (McGraw).	Disch. rel'd.	"I am no better than when I left the hospital, . . . stomach troubles me continually, . . . what I eat distresses me."
B. G. July, 1902. 24	M. †	32	Gastric pain for 10 years without vomiting. Pain came at irregular intervals and lasted a day to 2 weeks. In one attack jaundiced.	Pylorus indurated and lumen stenosed. Anterior gastro-enterostomy (McGraw).	Disch. rel'd.	Sponge removed 3 months after discharge. Pain and vomiting continue.
J. J. B. Sept., 1902. 25	M. †	36	Swallowed nitric acid 5 weeks previous. For about 3 weeks had vomited practically everything taken by mouth.	Pylorus and first part of duodenum were like a rope. Anterior gastro-enterostomy (McGraw).	Disch. rel'd.	Well. Serving a 6-months' term in Deer Island for stealing.
W. K. W. Oct., 1902. 26	M. †	42	Dyspepsia for 20 years. No history of any acute attack with vomiting of blood. Stomach held 55 oz.	Old scar at pylorus which constricted the lumen. Anterior gastro-enterostomy (McGraw).	Disch. rel'd.	"I don't feel any better than . . . the day I went in."
M. M. Nov., 1902. 27	F.	44	Vomiting and epigastric pain for 3 years. Hematemesis 2 days before entrance. No melena. Vomiting ½ to 2 hours after eating. Indefinite resistance and dullness in epigastrium. Loss of weight, 25 pounds in 3 years.	Dilated stomach. Distinct scar on pylorus. A few old adhesions of omentum to duodenum. Finney's operation of gastro-duodenostomy.	Rel'd.	Discharged from hospital Dec. 16. No gastric symptoms. Appetite and general condition improving.
L. F. Nov., 1902 28	F.	33	Four years ago a severe attack of vomiting and epigastric pain. Some hematemesis. Delicate stomach always. Right ovary and tube removed Oct. 20, 1902, for salpingitis. Ventro-suspension also performed 18 days after operation. Severe and persistent vomiting with hematemesis began and continued 10 days. Some blood in vomitus. Exhausted and emaciated. Tenderness in epigastrium.	Separations of old adhesions of duodenum and pylorus to posterior abdominal wall. Anterior gastro-jejunostomy with Murphy button. Patient in poor condition and operation had to be rapidly completed.	Rel'd.	Vomited almost constantly for six days after operation. Vomiting continued occasionally at gradually increasing intervals till Dec. 28. Discharged in good condition Jan. 10, 1903. No symptoms.

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Result	Remarks
G. N. T. Nov., 1902. 29	F. †	37	After birth of twins, 11 months ago, did not recover strength, and 9 months ago began to have attacks of vomiting once a week, gradually increasing during 2 months until they occurred daily. Five months ago began lavage, which relieved her. Has lost much strength and 20 pounds in weight. No solid food for 2 months. In medical ward from Oct. 4 to Nov. 25, 1902. At time of transfer surgical, on Nov. 25, was emaciated and exhausted.	No distention of stomach. Small intestine distended. Marked spasm of pyloric end and of duodenum, practically closing lumen for several inches. Anterior gastro-enterostomy with Murphy button. Good recovery from ether.	Died.	Five hours after operation began to fail, and died about 8 hours after operation.
J. F. May, 1903. 30	M.	29	Eight years ago for 4 weeks had epigastric pain and vomiting for 6 weeks. Hematemesis once during this period. Four days ago vomiting and epigastric pain returned. Tenderness in epigastrium.	Thickening of pylorus found, but no definite evidence of ulcer. Posterior gastro-jejunostomy by Mickulicz method.	Died.	Patient did not vomit, but did not sleep, became delirious, and steadily failed after operation. Died on third day. No autopsy.
A. R. June, 1903. 31	M.	50	Epigastric pain for 5 weeks, very severe for past week. Pale, emaciated. Dullness and marked tenderness in epigastrium, especially in left. Marked muscular spasm. Normal pulse and temperature.	Chronic ulcer of stomach on anterior surface near the cardia on the left, having a large perforation at its center, but adherent at point of perforation to abdominal wall. Much thickening of walls of stomach about ulcer. Gastro-plication. Posterior gastro-enterostomy by suture.	Rel'd.	Convalescence was slow on account of mural abscess which was opened on 8th day. The sinus was slow in healing. Was discharged on July 24, 6 weeks. Was up and about with no symptoms, and wound healed except for a small granulating area. Returned to hospital Aug. 13 and was operated Aug. 29 for abscess of right lung. Gradual convalescence. Small tumor excised from abdominal scar Oct. 22 and pronounced "Small, round, called sarcoma." Discharged Nov. 3. Up and about, though in rather poor condition and having a small sinus. Died at home about Dec. 10.
T. J. W. June, 1903. 32	M. †	58	Chronic epigastric pain without vomiting. No history of symptoms suggesting ulcer.	Pylorus small, nothing else remarkable. Posterior gastro-enterostomy (McGraw).	Disch. rel'd.	One week after discharge all symptoms returned and died 1 month later. Autopsy showed anastomosis contracted so as to admit only tip of little finger.
A. C. June, 1903. 33	F.	19	Pain and burning in epigastrium for one year. Had vomited blood. During attacks, epigastrium had been tender.	Stomach not remarkable. Posterior gastro-enterostomy (McGraw).	Disch. rel'd.	Better for 4 months. "After I eat I have the same bad pain, and I vomit most everything."
N. C. June, 1903. 34	F.	35	Six years ago attack of sharp abdominal pain with occasional hematemesis began and has continued with varying intervals since. Attacks last about 2 days. Last attack 2 weeks ago, accompanied by hematemesis. In good general condition, tender spot in epigastrium.	Stomach normal in size and contour. Some thickening at pylorus and a few slight adhesions. Posterior gastro-enterostomy with suture. Clamps used for hemostasis, linen thread used.	Rel'd.	Left hospital July 23 in excellent condition, with no symptoms, and was in excellent health on Jan. 5, 1904, 6 months later.

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Result	Remarks
J. McL. July, 1903. 35	F.	28	Gastric trouble for 10 years. For 3 months constant epigastric pain increased by food. In past attacks had vomited blood. Epigastric tenderness.	Old ulcer on anterior wall which had perforated and was buried in adhesions. Ulcer excised.	Disch. rel'd.	Well for 5 months, when pain returned and distress after any kind of food.
N. D. P. Aug., 1903. 36	M. †	52	Pain in epigastrium, nausea and vomiting for 3 years. Attacks of these symptoms have increased in severity and frequency. No hematemesis, no melena. Lower border of stomach 8 inches below umbilicus when inflated.	Pylorus found thickened and apparently obstructed. Anterior gastro-enterostomy with Murphy button at most dependent portion of stomach.	Died.	On second night after the operation vomited copiously and pulse was up to 135. On fourth day was comfortable and convalescence satisfactory. On eighth day developed a cough, became cyanotic and died suddenly. Autopsy showed an inhalation pneumonia.
J. W. Aug., 1903. 37	F. †	39	Distress after eating for 18 years. Pyrosis and sour eructations. Vomits large amounts every day or two. Daily stomach lavage for past 3 months has relieved her symptoms, but during this time she has lost 13 pounds. No hematemesis. Emaciated, but pulse good and in fairly good general condition. Gastric tympany a finger's breadth below umbilicus. Nodule sometimes felt in right side of epigastrium.	Stomach dilated, lower border below umbilicus. Marked thickening of pylorus, no lumen made out. Much induration of pylorus, suggesting possible malignancy. Pylorus undoubtedly almost completely occluded. Posterior gastro-enterostomy according to Moynihan's method.	Rel'd.	No vomiting after first night. Left hospital Sept. 12 in excellent condition. Soon went to work, and was well and at work in Jan., 1904.
S. I. McP. Aug., 1903. 38	F. †	24	Entered hospital in Sept., 1901. Symptoms suggesting gallstones. Operated and nothing found except a liver which was scarred so that diagnosis of probable syphilis was made. Re-entered July, 1903. Had taken mercury only for 6 months after discharge. For 3 months had been improved. Since then had suffered from dragging pain in epigastrium, belching of wind and nausea, but no vomiting. Good appetite. Medical treatment for 3 weeks without relief. Stomach held 36 oz. Analysis of contents showed no free HCl.	At operation many adhesions found around pyloric end of stomach. Posterior gastro-enterostomy, McGraw. (No mention of condition of stomach or liver.)	Disch. well.	
A. C. Sept., 1903. 39	F.	39	For seven or eight years has vomited pretty regularly 1 to 3 hours after meals. Steady pain—relieved only by vomiting—in epigastrium extending through to back. Treated at medical O. P. D. about 1 year. Diagnosis: Slight hyperacidity and gastroptosis. Lavage 3 times a week for just 3 months, has not relieved vomiting. In 5 months has lost 19 pounds.	Indurated area on anterior surface near lesser curvature. Pylorus much thickened, but not indurated. Enlarged glands in mesentery, one of which was excised. Posterior gastro-enterostomy with suture.	Rel'd.	No vomiting after operation. Left hospital Sept. 29, 1903, eating full diet and having no discomfort. Jan. 3, 1904, was in excellent condition.
L. L. Sept., 1903. 40	F.	23	Brought to the hospital on July 12, 1903, for tetany. Was said to have had a gastric ulcer ten years ago. While on medical side had epigastric pain, tenderness and vomiting. No hematemesis. No melena. Treated	Sept. 10, 1903, gastropexy. No evidence of ulceration found, no relief of symptoms. Oct. 7. Stellate cicatrix found on anterior surface near the greater curvature. Thickening at pylorus. Poste-	Rel'd.	Patient still in hospital to-day (Feb. 11, 1904). Gaining steadily, and vomiting only occasionally. Subsequently vomiting increased, and on March 23, was re-

CASE 40. — *Continued.*

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Result	Remarks
			from July 12 to Sept. 10, 1903, without much improvement.	rior gastro-enterostomy. Marked relief of symptoms till Oct. 31, 1903, when vomiting returned, and continued at intervals until Dec. 7, when entero-anastomosis was done with the Connell suture. A spur was found at site of anastomosis, probably obstructing loop. Temporary relief, followed by return of vomiting and symptoms of tetany. Jan. 6, 1904, Finney's operation. Pylorus found contracted and gastro-enterostomy wound closed so as not to admit tip of finger.		ported in poor condition.
E. G. C. Sept., 1903. 41	F.	44	Stomach trouble 20 years ago. For 6 months epigastric pain and nausea, increased by eating. Has vomited coffee-ground material several times. No melena. Loss of 25 pounds in weight. Insomnia. Pyrosis. Anorexia. For 6 months has had stomach washed every few days. Occasionally blood in the washings. Trouble began 20 years ago, with an attack of inflammation of the bowels. Is in fair general condition. Stomach not dilated. Slight tenderness in epigastrium.	Omentum found adherent to pelvic viscera and walls, evidently due to an old pelvic inflammation. Stomach normal size. Slight thickening on posterior wall, near greater curvature to the left. Pylorus normal. Omentum ligated with silk and freed from pelvic attachments. Stomach then turned up and posterior gastro-enterostomy performed by Moynihan's method.	Died in 8 days.	Excellent convalescence for 48 hours. Then patient began to look badly and vomit. Vomiting of greenish fluid became constant in spite of lavage, and condition became very poor. On Sept. 26 (eighth day) entero-enterostomy was performed, but patient never rallied, and died that evening. Autopsy: Several small ulcerations on the fundus. A rather large omental stump, with a coarse silk ligature, had attached itself to the anastomosis, and surrounded by this had formed a mass which obstructed the gut at the anastomosis. Gastro-enterostomy tight and also entero-anastomosis.
P. J. G. Oct., 1903. 42	M.	20	Admitted Oct. 13. For 1 week had had dull pain in right hypochondrium. 24 hours before was seized with sharp pain shooting into right scapular region, with chill and vomiting. Examination: Pale, sick looking, marked tenderness and spasm in right hypochondrium. Probable diagnosis: Cholecystitis.	Incision at outer border of right rectus. Gall bladder found normal. Appendix buried in adhesions very long and sharply bent on itself. Tedious appendectomy. The excess of clear fluid noted in peritoneal cavity, and on further examination pylorus found to be much thickened, especially in upper portion, and firmly attached to fresh adhesions to under surface left lobe of liver; fearing that detachment of the pylorus would almost certainly result in a perforation (there had probably been a perforation which was closed by immediate adhesion of the liver), the stomach and colon were turned up and a posterior gastro-enterostomy performed with suture.	Rel'd.	Vomited for two days after operation, but pulse and temperature remained good. Elevated to a sitting posture stopped the vomiting on the third day. Left hospital in good condition in 21 days; and 2 months later, Jan., 1904, was in excellent health.

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Result	Remarks
S. B. Oct., 1903. 43	M. †	30	Vomiting a short time after meals for two years. No hematemesis. No melena. In hospital 3 times and operation advised. Dilated stomach visible and palpable in upper left abdomen. Tetany.	Stomach found much dilated and pylorus obstructed, apparently by fibrous thickening. Posterior gastro-enterostomy	Rel'd.	No vomiting after operation. Solid food on tenth day. Convalescence delayed by a phlebitis of left leg. Left hospital on Dec. 19, with no gastric symptoms.

III. OPERATIONS FOR PERFORATION OF GASTRIC ULCER.

PERFORATION.

Number of cases	18	
Number of recoveries	5	27.8%
Mortality	13	71.2%
Present conditions — well	5	27.8%

It is certainly gratifying that surgery was able to save these five patients whose condition rendered recovery almost hopeless. In the next series of eighteen cases with perforation of a gastric ulcer operated upon at the Massachusetts General and Boston City Hospitals, we feel sure that the per cent of recoveries will be far greater, and we are led to this conclusion by the study of results obtained in the last six years.

Duration between perforation and operation. — The lapse of time between perforation and operation can be only approximately determined. In the five successful cases the duration was on the average fourteen and one-half hours, while in twelve of the fatal cases it was nearly twice as long, namely, twenty-five hours. Three of the fatal cases were operated upon under such favorable conditions as regards time — four, six, ten hours respectively — that their fatal issue demands especial explanation. The first of these patients (Case 18) walked to the Medical Out-Patient Department, but was allowed to depart with the condition undiagnosed. She shortly returned to the accident room and was promptly operated upon. This active exertion at the time of perforation had probably much to do with the final result. Case 12 was operated upon six hours after perforation, and did well until the eighth day. The stitches were then removed. Shortly after, in a fit of coughing, the wound was burst open, and, despite a prompt secondary operation, the patient rapidly failed and died. Case 8 was forty years of age, and had used whiskey to excess for one week previous to the operation.

Three cases were operated upon sixteen hours after perforation. Of these, one died upon the table (3) and another (11) in three hours, thus showing the desperate condition of the patients. The remaining patient (14) lived until the ninth day.

A study of the fatal as well as the successful cases plainly shows the advantage of early operation. This implies an early diagnosis, which, as a rule, is not difficult to make from the severe epigastric pain and the history of the patient. The importance of prompt action does not appear, however, to have been grasped by surgeon or physician in several instances. Case 1 was kept on the surgical side for some twenty-four hours after perforation took place, and Case 6 remained in a medical ward for the same length of time. Case 2 remained in the medical ward eleven hours after perforation. Case 17 while on the medical side developed sharp epigastric pain and abdominal rigidity at 6.30 P.M. The liver dullness became partially obliterated. Leucocytes = 17,500. At midnight the leucocytosis had slightly increased and the patient had vomited. Both medical and surgical house officers agreed in the diagnosis of perforation, and the condition was reported to the visiting physician, who advised medical treatment. The next morning the belly was much more distended, and an operation was finally performed. Death occurred in this instance in sixteen days from the general infection plus the acute infection due to a fecal fistula.

Age. — The average of the five patients who recovered was twenty-one years, while the average age of the thirteen fatal cases was twenty-nine years. Only one case above the age of twenty-one recovered, and this patient was thirty years old. Only three patients died who were twenty-one years of age or less. The influence of age appears striking in these 18 cases, but quite possible in a larger series it would lose its significance.

Sex. — There were nine male and nine female patients, and of the five patients who recovered two were female. Sex is therefore without import.

Condition since operation. — Five of the 18 patients left the hospital alive, and of these three have been continuously well. Of the remaining two, one patient (Case 5) developed intestinal obstruction twenty months after operation. This was relieved, and now, five and a half years after the first operation, he is in good health and at work. The remaining patient (7) had a recurrence of the ulcer, and at the present time is convalescing from a gastro-enterostomy.

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Result	Remarks
J. M. Dec., 1898. 1	M.	40	Operation 24 hours after perforation. Entered as an accident room emergency. For five weeks attacks of sharp epigastric pain, lasting a few hours. Two days before entrance confined to bed by this pain, which had	Operation about 30 hours after entrance. The abdominal cavity was filled with stomach contents. A perforation in the lesser curvature of the stomach was closed with Lembert sutures, and the general	Died.	Died a few hours after operation. Autopsy showed a general peritonitis.

CASE 1. — *Continued.*

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Result	Remarks
			grown worse. Examination made by attending surgeon, and patient sent to ward. During the afternoon abdominal rigidity developed. Attempts were made to move the bowels. The following morning vomiting began and later became peritonitic in character. In the afternoon, pulse 140, with signs of general collapse.	cavity washed out with salt solution and drained.		
J. M. Jan., 1899. 2	M.	19	Operation about 15 hours after perforation. Acute indigestion for one week. Probable perforation a few hours before entrance to hospital. At entrance temperature, 95.4. Pulse 60. Blood count 43,600. Abdomen rigid. Kept in ward about 12 hours before operation.	Perforation the size of a lead pencil on anterior wall. General cavity filled with debris. Perforation closed, lavage, drainage.	Well.	Well, Jan., 1904.
C. L. Apr., 1899. 3	F.	22	Operation 16 hours after perforation. For three or four years much nausea and epigastric pain after eating; worse during last year. Vomitus sour. No blood vomited or passed by rectum. The night before entrance went to bed apparently in the usual condition. At 2 A.M. awakened by severe pain on the left side, and vomited three or four times. Deep inspiration caused acute pain and the attending physician diagnosed diaphragmatic pleurisy. During the day constant epigastric pain, increased by food, which also caused vomiting. A haggard expression and pale face. Rigidity of abdominal muscles; localized tenderness over the eleventh rib, near the spine. White count 23,200. Temperature 102.8. Pulse 120.	The general peritoneal cavity was full of debris, and on the anterior wall of the stomach at the cardiac end was a perforation.	Died.	Died on the table. No autopsy.
M. B. Apr., 1899. 4	F.	35	Operation 24 hours after perforation. Two years before entrance an attack of epigastric pain with vomiting. Ten months ago a similar attack which lasted several weeks. For five days severe epigastric pain after eating and frequent vomiting. Evening before entrance a sharp pain in the left hypochondrium, worse than ever before. At entrance patient was in state of collapse. Abdomen distended and tympanitic. Liver dullness obliterated. Abdominal wall rigid. White count 13,000. Pulse 120. Temperature 99.	Immediate operation. General peritoneal cavity filled with gastric contents. At the cardiac end a perforation of the stomach wall the size of a cent. Perforation closed, lavage, drainage.	Died.	Died the same night. Cultures from general cavity showed mixed growth of bacteria with abundant streptococcus hyogenes. No autopsy.
W. L. June, 1899. 5	M.	30	Operation 18 hours after perforation. Indigestion for one year. Twenty-four hours before operation vomited, after drinking moderately of beer. Eighteen hours before operation a sudden attack of epigas-	On opening abdomen in epigastrium, gas and bile-stained fluid escaped. General peritonitis. Pus and fibrin everywhere, and in pelvis. Induration of pyloric portion of stomach, and a perfora-	Rel'd.	Operated upon Feb. 16, 1901, for intestinal obstruction by a band. Jan. 5, 1904, 5½ years after first operation, was in good health and at work every day.

CASE 5. — *Continued.*

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Result	Remarks
			tric pain, which was severe and continuous. Pale, eyes sunken, abdomen retracted and held in boardlike hardness. General tenderness, extensive in epigastrium.	tion ⅜ in. in diameter on anterior surface, ¾ in. from the pylorus. Gastroplication, folding stomach over on to first portion of duodenuem. Lavage of cavity and drainage of pelvis by glass tube passed through incision below umbilicus.		
M. McE. Dec. 1899 6	F.	20	Operation 72 hours after perforation. Four days ago suddenly seized with sharp pain in lower left chest, running up into shoulder. Two days ago severe pain in epigastrium caused her to go to bed. Vomited only once two days ago. Twenty-four hours ago vomited dark brownish material and spasm appeared in epigastrium. Peritoneal facies. Temperature 102. General abdominal spasm and tenderness, especially marked in epigastrium.	Median epigastric incision enlarged by lateral cut at upper end. Alimentary contents in peritoneal cavity. Perforation size of slate pencil in lesser curvature. Large ulcer surrounding perforation. Gastroplication. Lavage of peritoneum. Drainage of pelvis by glass tubes and gauze.	Died.	Shock, 24 hours after operation.
M. H. Jan., 1900. 7	F.	19	Operation 24 hours after perforation. Eighteen months ago in hospital for gastric ulcer with epigastric pain and hematemesis. Two subsequent attacks of pain and vomiting. Twenty-four hours ago acute violent pain in epigastrium, left abdomen and left shoulder. No vomiting, No syncope. Good color, does not look sick. Spasm and tenderness over left rectus and whole left abdomen. Extreme tenderness in epigastrium.	Median epigastric incision. Peritoneal cyst beneath abdominal wall. At pyloric end, close to lesser curvature, a perforation ¼ inch in diameter lying in the midst of edematous tissue. Gastroplication, after partial excision of ulcer. Lavage of peritoneum. No general peritonitis.	Rel'd.	Subsequently had a recurrence, and on Jan. 5, 1904, was recovering from a gastro-enterostomy.
J. K. May, 1900. 8	M.	40	Operation 10 hours after perforation. One week ago began to vomit in the evening. Worked until yesterday. Ten hours ago sudden sharp pain in abdomen, constant, general. Vomiting every few minutes. No blood. Has taken whiskey to excess during last week. Pulse 136. Pale, peritoneal facies. Abdomen slightly distended, tender and tympanitic.	Incision in epigastrium. Free brownish fluid in cavity. One inch from pylorus a perforation nearly ½ in. in diameter. Gastroraphy. Lavage and drainage of peritoneum.	Died.	Shock and peritonitis. Died in eight hours.
E. J. Oct., 1900. 9	F.	17	Operation 10 hours after perforation. Stomach trouble for a year. Pain, eructation. For one week severe pain in epigastrium. Sudden onset. Vomiting at first. At work till this A.M. Sudden attack of pain this P.M. at 1 so severe that she lay down on the floor for some time before getting strength to crawl to bed. Vomiting continued with a little blood. Looks sick. Temperature 102. Pulse 110. General abdominal tenderness and spasm, much more marked in epigastrium.	Median epigastric incision. Turbid serum free in peritoneal cavity. Flakes of fibrin on anterior surface of stomach. On drawing stomach out, slightly adherent to liver; near the cardia on anterior surface was an indurated area 1½ in. in diameter, having a pin point perforation at its center. Ulcer inverted, sutured with interrupted sutures of silk.	Rel'd.	Excellent convalescence. Went to work in 2 or 3 months, and in Jan., 1904, was in first-rate health.
N. O'C. Dec., 1900. 10	F.	21	Operation 48 hours after perforation. Stomach trouble for about 6 months, pain after eating, relieved	Short incision below umbilicus. Cloudy serum free beneath peritoneum. Diffuse fat necrosis of	Died	Died in 8 hours Shock and peritonitis.

CASE 10. — *Continued.*

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Result	Remarks
			by vomiting. Two days ago, three hours after eating, taken with severe pain in upper part of abdomen. Vomiting. No blood. Pain very severe that evening. Chill yesterday. Pain continued. Flushed, face drawn. Tenderness and spasm all over abdomen, most marked in epigastrium.	omentum. Thin pus in pelvis. Adhesions in epigastrium, showing omentum surrounding a large pocket of bile and thin pus. Fibrin at pylorus and on anterior surface and upper border, close to pylorus, and on gastric side a clean punched opening about ¼ in. in diameter. Very little surrounding induration. Gastroplication. Drainage after irrigation.		
A. H. June, 1901. 11	M.	26	Operation 16 hours after perforation. Epigastric pain 8 or 9 years, and occasional vomiting of watery material. No hematemesis. No malena. About 16 hours before operation, at 8.30 in the evening, sudden severe pain in abdomen, with great prostration, sweating and vomiting. Pain severe all night, but better this A.M. Face drawn and anxious. Abdomen tender. Marked muscular spasm. Dullness in flanks, changing with position.	Median incision below umbilicus. Gas, pus and stomach contents escaped from peritoneum. Epigastric incision. Perforation found on lesser curvature, near pylorus, surrounded by considerable induration. Two silk sutures applied, but did not close it very well. Perforation walled off with wicks and glass drainage tube. Thorough irrigation and drainage of abdomen through another incision below umbilicus with tubes and gauze.	Died.	Died in about 3 hours. General peritonitis.
A. F. Aug., 1901. 12	M.	23	Operation 6 hours after perforation. Two years ago short attacks of pain in right abdomen, with vomiting and fever. Six hours ago while carrying heavy sac on shoulders felt something give way in abdomen, with pain so severe as to double him up. Vomited twice. Looks sick. Pulse 89. Temperature 100.8. Abdomen rigid. Excessive tenderness below umbilicus in median line.	Median incision, with umbilicus as central point. Thick pus in abdomen. Incision carried to ensiform. On anterior surface near greater curvature 2 inches from pylorus, a perforation 1 cm. in diameter. Induration 2½ cm. in diameter. Gastroplication. Irrigation. Suture without drainage.	Died.	Steady improvement for 8 days. Stitches then removed. Patient had a mild chronic bronchitis. In a fit of coughing burst open the wound and intestines protruded. Etherized and intestines irrigated and replaced. Considerable shock attended this procedure, and patient died in about 2 hours.
A. G. Oct., 1901, 13	M.	48	Brought to accident room at 4.30 A.M. During the past year attacks of epigastric pain. For 2 months the stomach symptoms have been more acute, requiring treatment in the Out-Patient Department. No attacks of sudden pain or faintness. At entrance, temperature 97; pulse 96. Examination of the belly was remarkable only from the presence of a small epigastric hernia. White count 12,000. Patient sent to the ward. Immediate operation advised at 9 A.M.	On opening the peritoneum, gas and milky fluid escaped. On the anterior wall of the stomach was found a good-sized perforation. This was closed with a silk stitch and the general cavity washed out. On the day after operation condition was satisfactory. On next day abdomen became distended, and an attempt was made under ether to drain the bowel by an artificial anus.	Died.	Died 2 days after operation. No autopsy.
K. H. June, 1902. 14	F.	18	Operation 16 hours after perforation. Entered accident room at 10 A.M. Temperature 102.4; pulse 146. Up to 3 months ago general health good, when for 3 weeks attacks of pain developed at intervals of 2 or 3 days in the region of the	Immediate operation demonstrated the general peritoneal cavity filled with turbid fluid. At the cardiac end of the posterior surface there was a perforation. This was closed and the cavity washed out. The after	Died.	Died 9 days after operation. Autopsy showed general peritonitis. The stomach wall, where the ulcer had been closed, had remained solid. On the anterior wall of the

CASE 14. — *Continued.*

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Result	Remarks
			umbilicus. Vomiting during the attacks, but without blood. Four days before entrance, after lifting a pail of water, patient was seized with acute pain in right side of abdomen. Pain was severe during all of that day and finally shifted to left side. At 6.30 P.M. on day before entrance she had a sharp pain in the umbilical region and vomited twice. In the night the epigastrium became tender. Examination showed general abdominal rigidity. Belly tympanitic. Shifting dullness in flanks and liver dullness obliterated. Color fairly good.	course was that of a typical general peritonitis.		stomach were multiple ulcers.
L. P. Oct., 1902. 15	M.	21	Operation 6 hours after perforation. Not well for 2 to 3 weeks. Afternoon of entrance had very acute abdominal pain without vomiting. At entrance temperature 101; pulse 100. Leucocytes 21,000. Shifting dullness in flanks. During examination vomited blood.	Immediate operation. Perforation on anterior wall at pyloric end. Small amount of turbid fluid which gave no growth on cultures. Perforation closed and posterior gastro-enterostomy, with McGraw ligature, lavage and drainage. Mixter tube in cecum.	Well.	Well Sept., 1903.
M. M. Jan., 1903. 16	F.	22	Operation 48 hours after perforation. "Stomach trouble" for many years. Two years ago was treated on medical side 46 days for gastric ulcer. For 2 days has not felt well. Strained herself while lifting, and soreness appeared in umbilical region. Vomited. Color pasty. Sensorium dulled. Abdomen distended, soft, except on right, where there is slight voluntary spasm. For 2 days pulse rose from 104 to 120, and temperature from 101.4 to 102.8.	Long itudinal incision over gall bladder. Gas and bloody fluid escaped from peritoneum. Grape seed removed from peritoneum. Incision carried to left, but patient's condition became so poor that perforation was not searched for. A thick wall cyst containing hemorrhagic and fine contents was packed with gauze. Query: Was not this the stomach?	Died.	Rallied from operation, but gradually failed and died 4 days later. No autopsy. Patient was admitted "surgical."
A. S. R. Jan., 1903. 17	M.	39	Operation 17 hours after perforation. For 7 years pain in the epigastrium about 2 hours after eating. At the end of 4 years the pain became worse, more frequent and associated with nausea and vomiting. Entered hospital in 1901. Hemoglobin, 75%; leucocytes, 9,900. Capacity of stomach, 3 pints. Free HCl. present. Lactic acid absent. By the hemin test blood was demonstrated in the stomach washings. The diet was regulated and in 9 days the patient was discharged, much relieved. Improvement continued for a year and one half. Six months before final entrance to the hospital, Dec. 30, 1902, there had been constant epigastric pain in attacks of 3 or 4 weeks' duration, followed by several shorter attacks. Once after passing a stomach tube he had vomited blood. For 3 weeks	On opening the abdomen, gas and stomach contents were found, as well as a perforation in the anterior wall of the stomach. Perforation closed and an omental graft applied; cavity washed out and drained. Pulse at end of operation 180, and condition poor. Thirteen days after operation a fecal fistula, not gastric, developed.	Died 16 days after oper'n.	The patient had apparently overcome the acute peritonitis, and death was due to the chronic absorption plus the acute process caused by the fecal fistula. Autopsy showed evidence of a general peritonitis and multiple small abscesses imbedded in meshes of fibrin around the spleen. In the left pleural cavity a moderate amount of blood-tinged fluid. The stomach showed at the pyloric end an old ulcer, 8 cm. in width by 7 cm. in length, extending in the direction of the lesser curvature. The base of the ulcer was fairly smooth, but showed several depressions. At the base of one of the

CASE 17. — *Continued.*

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Result	Remarks
			previous to Dec. 30, 1902, had suffered from epigastric pain. Pain not dependent upon food, and was relieved by sodium bicarbonate. No large amounts vomited. Hemoglobin 75 %; white count 9,600. During the day of entrance and until evening of the following day the patient was comfortable. At 6.30 P.M. sharp epigastric pain appeared, and abdominal rigidity developed. The liver dullness became partially obliterated. Leucocytes 17,500. At midnight the leucocytes had slightly increased and the patient had vomited. Iodophilia test gave slight reaction. Condition was reported to the visiting physician, who advised medical treatment. The next morning the belly was much more distended and operation advised.			deeper depressions, situated nearest to the lesser curvature and about 5 cm. above the pylorus, there was a small, blackish-red area. Section through this area showed that the depression reached quite to the peritoneal coat and was covered over by an adherent ridge of rather dense grayish tissue material. Fecal fistula in descending colon.
M. E. R. Jan., 1903. 18	F.	22	Operation 4 hours after perforation. Entered hospital as an accident room case. General health good until 2 months ago, when epigastric pain, gas and sour regurgitations developed. At times the epigastrium was tender, but on lying down tenderness and pain would pass away. No mention of vomiting, with or without blood. At nine o'clock on the morning of entrance the patient was seized with a violent pain in the right hypochondrium unaccompanied by chill or vomiting, and came to the Out-Patient Department, but her condition apparently did not warrant entrance to the hospital. Later in the accident room immediate exploration was advised.	At the operation an indurated mass without definite perforation was found in the region of the pylorus. Within this mass several small abscesses were evacuated. Abdomen wicked. On reaching the ward after the operation, the temperature was 104.8 and pulse 120. For 3 days the temperature remained at 104, 105, 106.	Died.	Died 3 days after operation, evidently from general peritonitis. No autopsy.

IV. OPERATIONS FOR GASTRIC HEMORRHAGE.

Ten cases; ten deaths. The series includes 6 females and 4 males. Four of the patients were under thirty years of age, 3 between thirty and forty, 2 between forty and fifty and 1 of unknown age. The youngest man of known age was twenty-eight, the oldest forty-six; the youngest female twenty-three, the oldest forty-seven.

In 9 cases gastric symptoms had existed for two to ten years. In one, a female of twenty-three, the hemorrhage ushered in the first gastric attack. A definite history of previous attacks of bloody vomiting was obtained in 3 cases. In 5 cases the hemorrhage came without other acute symptoms, and in 3 of these cases there was also a sudden collapse. Three times definite severe epigastric pain preceded the vomiting of blood or melena.

A lowered percentage of hemoglobin or pallor was noted in all cases. Epigastric tenderness was general. Once there was definite tenderness in the back, on the level of the eleventh rib.

In the case of the female in her first attack the operation was within thirty-six hours of the hemorrhage. In the other cases the time of operative interference varied between two and thirty days after the beginning of the acute attack.

The general condition of each patient before operation was desperate, as is shown by the fact that 6 of the cases were medical transfers which were regarded as cases of forlorn hope and the remaining 4 were admitted as surgical emergencies of the most severe type.

Eight times the stomach was incised and explored by invagination of the wall. Twice no general examination of the interior was made. Of the 8 careful explorations 3 were negative; 1 other was negative, save for two bleeding points which were possibly due to manipulation; 1

showed numerous areas which seemed to ooze; 1 had pyloric thickening; 1 showed an ulcer on the posterior surface without any evident point of hemorrhage, and 1 had an ulcer on the lesser curvature with a definite point of hemorrhage. In the two operations where no exploration of the interior was made, one stomach showed at operation an induration on the anterior surface near the pylorus and the other a thickened pylorus.

Twice the operation consisted in the repair of the stomach wall after incision; twice the ulcer was excised; once the ulcerated area was turned in with a purse-string suture; once the stomach was sutured to the abdominal incision and tamponed with gauze; and four times a gastro-enterostomy was done.

Death occurred from three hours to eight days after the operation, seven dying within seventy-two hours.

The cause of death given in order in the cases in which an autopsy was made was gastric hemorrhage, general peritonitis following a second operation, gastric hemorrhage, gastric ulcer with probable bleeding point at its center combined with operative shock, inhalation pneumonia.

The probable cause of death, given in order, of the cases in which no autopsy was made was continued hemorrhage with inanition, acute hemorrhage, continued hemorrhage into bowel, probable acute hemorrhage, shock of operation in the extreme condition.

The large proportion of males in this series, a ratio of 2 to 3, is a striking illustration of the accepted fact that gastric hemorrhage in men is a much more serious symptom than in women.

The previous histories and entrance examinations are not remarkable. Only the severity of the symptoms differentiates them from routine gastric hemorrhage cases.

Operation was undertaken at a time when the resistance of the patient had been reduced too far. This in our opinion was due primarily to the belief that gastric hemorrhage is a condition for medical treatment alone, and rarely to unavoidable circumstances,

Isolated instances of operations "*in extremis*" are justified, but to continue to interfere in these cases of gastric hemorrhage only at the point where all hope of recovery under medical treatment had gone would seem to be a questionable procedure and to offer practically no advantage to the patient. Operations must be attempted before the resistance has been reduced to the extreme, and that time, it seems to us, must be determined by the internist and the surgeon working together. Their combined judgment of general condition and probable prognosis under either method of treatment will determine in each case the advisability of operative interference.

The findings at operation are disappointing, in that autopsies when made and the subsequent course of the case so generally disproved their negative reports.

In the 2 cases in which nothing was done but to repair the wounds of the stomach wall, certainly no advantage was given the patient. The method of suture to the abdominal wall and tampon of the stomach, considering the necessary course of the wound, must be classed as a procedure of questionable value. Excision or turning in of the ulcers as performed in 3 cases, while apparently indicated, is certainly not the accepted doctrine of to-day. Hence in 6 of the cases the operation was theoretically in error. Gastro-enterostomy which was done four times was equally unsuccessful. Why this was so, probably depended upon the condition of the patient, but the one autopsy finding available is suggestive, that is, "the anastomosis admitted the passage of the middle finger." As the whole virtue of this operation depends on the theory of free and easy drainiage of the stomach cavity, the explanation is suggested that the location and size of the anastomosis may have been at fault. The failure to relieve the irritation of the ulcer probably accounts in at least some cases for the continued or recurrent bleeding.

The "bleeding point" is so seldom found, and the results of a hurried examination so unreliable, that a prolonged exploration in these hemorrhage cases where operative shock may be such a factor is not justified. A properly placed gastro-enterostomy with an ample opening is, in our opinion, the operation which offers the greatest hope of success.

The cause of death may be stated in general as a continuation of the conditions existing before the operation plus the shock of operation. The inhalation pneumonia attracts notice from its presence in so small a number of cases and serves to emphasize the importance of the consideration of this risk in stomach surgery. The one general peritonitis which followed a second operation after the breaking open of the wound must be regarded as an unfortunate calamity that is not likely to occur again. Three deaths in females under thirty years old is in marked contrast to the results of medical treatment as shown by statistics. Two of these cases, however, were admitted to the medical wards and transferred after treatment for five to eight days as practically hopeless.

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Result	Remarks
M. J. A. May, 1898. 1	M.	46	Chronic indigestion for 10 years. Markedly worse for 2 months. Two days before entrance vomited blood and fainted. At entrance, examination negative, except for localized tenderness in the	Indurated mass the size of a silver dollar on the anterior surface of the stomach, near the middle of the lesser curvature. Indurated area turned in with a purse-string suture.	Died on 7th day after operation.	After operation stools continued to be tarry for 48 hours. For 6 days condition of patient was satisfactory. On 7th day sudden collapse with

CASE 1. — *Continued.*

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Result	Remarks
			back over eleventh rib. Blood showed hemoglobin 35%; white corpuscles 4,800; reds 3,324,000. Medical treatment for 48 hours without relief. Transferred for operation, with pulse of 120 and temperature 96°.	Condition at end of operation, poor.		classical symptoms of hemorrhage. Autopsy demonstrated a hemorrhage from the gastric ulcer on the anterior surface of stomach. General peritoneal cavity clean.
C. C. Dec., 1898. 2	F.	29	For 3 years epigastric pain about 30 minutes after eating. Eighteen months before entrance vomited considerable coffee-ground material. Two days ago vomited 4 oz. more or less blood, and fainted. Entrance examination negative, except for localized tenderness in epigastrium. Hemoglobin 70%. No free hydrochloric acid in stomach contents. Rectal feeding for five days, but continued to vomit bright blood. Transferred for operation with pulse of 140.	No definite area of ulceration. Exploration of stomach showed several areas which seemed to ooze blood. Stomach sutured to abdominal wall and packed with gauze.	Died on the eighth day after operation.	Gauze tampon in stomach apparently caused no special symptoms. Packing removed after 48 hours, during which time the general condition was satisfactory. Removal of gauze followed by continued hemorrhages and usual sequelæ of gastric fistulæ. Death apparently due to hemorrhage and inanition. No autopsy.
T. McG. Mar., 1901. 3	F.	33	For 2 to 3 years distress after eating. On morning before entrance, without other symptoms. Vomited a cupful of blood. Entrance examination negative. Medical treatment for 22 days without relief. Pulse suddenly went from 70 to 140, abdominal pain increased, localized tenderness developed in epigastrium, and vomiting became more nearly constant. Transferred to the surgical wards, where rectal feeding was continued for 48 hours. Condition before operation extremely poor.	No definite point of hemorrhage or perforation. Adhesions about pylorus and pyloric end of stomach thickened. Anterior gastro-enterostomy with suture.	Died 3 days after operation.	After operation the stomach was less irritable. On the evening of the third day the pulse suddenly shot up, and this, with other signs of collapse, suggested another hemorrhage as the cause of death. No autopsy.
W. R. May, 1901. 4	M.	28	For 3 years attacks similar to present one. Had been in hospital 3 times for treatment of gastric ulcer. Medical treatment for 1 month, during which time hematemesis, melena and hiccough persisted. Systolic murmur at apex. At surgical transfer there was epigastric tenderness, and stomach tympany extended below umbilicus.	Exploration of stomach and as much of the duodenum as possible was negative. Gastro-enterostomy with suture.	Died 5 days after operation.	Vomiting continued, and 3 days after operation the patient strained the wound open. Chloroform and suture of wound. Vomiting continued. Autopsy showed slight lesion of mucosa 1 cm. square, situated 4 cm. from the pylorus and general peritonitis.
M. S. Aug., 1901. 5	F.	39	Indigestion for 2 years. Two weeks ago had severe epigastric pain after eating. 48 hours ago vomited blood and began to have bloody stools, which continued up to entrance to hospital. At entrance, there was pallor of skin and mucous membranes and general tenderness over abdomen, but most marked in the epigastrium. Pulse 88, irregular and intermittent.	Median epigastric incision. Stomach explored, but no evidence of ulcer. Duodenum also explored as far as possible, but with negative results. Anterior gastro-enterostomy with Murphy button.	Died on 3d day after operation.	Rectal hemorrhages continued after operation. Occasional vomiting. Pulse and temperature gradually went up. No autopsy.
M. R. Sept., 1901. 6	F.	23	Previous history unimportant. 36 hours before entrance vomited blood, and had a bloody stool. Hematemesis repeated twice. Evening of entrance vomited about a basin full of	Subcutaneous infusion of salt solution before operation. Exploration of stomach failed to show any ulceration. Two small bleeding areas near edge of incision excised.	Died on 3d day after operation.	Rallied from shock, which was extreme, but the following day began to grow weak, pale and very restless, and failed to respond to stimula-

CASE 7. — *Continued.*

Name, etc.	Sex	Age	Symptoms, etc.	Condition, etc.	Result	Remarks
			blood, and pulse became rapid, feeble and thready.			tion. It was a question whether the bleeding points which were excised, might not have been caused by the trauma of the operation. No autopsy.
M. B. Sept., 1901. 7	F.	25	Had been in hospital 6 years before for chlorosis, and 1 year before for gastric ulcer. For 13 days before entrance vomited all food. Once vomited a cupful of bright blood. Medical treatment for 8 days without relief of vomiting or hematemesis. Transferred for operation with sub-normal temperature, pulse of 150, and epigastric tenderness.	Not much blood in stomach and no definite bleeding point. On posterior stomach wall, close to the center of the lesser curvature, was an ulcer 15 by 12 mm. Ulcer excised. Stomach wall sutured in layers.	Died on second day after operation.	Patient did not rally from the shock. Pulse and temperature rose. No response to stimulation. No autopsy.
M. L. Apr., 1902. 8	F.	47	Chronic indigestion for 6 to 8 years. Symptoms more marked for 10 months. Vomiting of bright blood and collapse 4 days before entrance. Two days after entrance vomited half a pint of bright blood. Operation 8 days after her first gastric hemorrhage. Patient in state of moderate collapse. Hemoglobin 75 %.	Pyloric end of stomach indurated. Posterior gastro-enterostomy with the aid of a bone bobbin.	Died 2 days after operation.	After the operation hematemesis continued. Autopsy showed a small ulcer on the anterior surface of the stomach, situated near the lesser curvature and midway between the pylorus and esophagus. At base of ulcer was an erosion of a large branch of the gastric artery. Near the open ulcer were 2 small cicatrices. The anastomosis admitted the passage of middle finger.
J. J. F. Mar., 1903. 9	M.		"Indigestion for years." Two days before entrance had a sharp epigastric pain; and later vomited coffee-ground material. Vomiting continued at entrance. There was extreme pallor, a retracted abdomen with epigastric tenderness and a thready pulse at 190.	Exploration of stomach through incision in anterior wall showed only blood clots. Two other incisions at cardiac end failed to show any ulceration. Incisions sutured.	Died 3 hours after operation.	Did not rally after operation. Autopsy showed a small ulcer with a cicatricial base, located at the pylorus. At the center of the indurated base was a bright red spot which was evidently the source of the hemorrhage.
A. R. F. Nov. 1903. 10	M.	39	"Stomach trouble" for 2 years. For 5 weeks epigastric pain and occasional vomiting, during which time he had lost much weight and strength. For 2 days stools had been tarry and offensive, and he had grown weaker. Five hours before entrance there was a sudden collapse. At entrance the skin was grayish; expression anxious; pulse of 100, regular and of fair strength. Tenderness and spasm in epigastrium.	High left rectus incision. Ulcer 2.5 cm. in diameter, situated 10 cm. from the pylorus on the lesser curvature. Ulcer evidently chronic, having a cicatricial base. At the center of the base was an eroded vein, which was plugged by a clot. Excision of ulcer and suture of stomach wall.	Died on 3d day after operation.	For 36 hours did well. Then followed a rapidly rising pulse, restlessness and marked thirst. Salt infusions, gelatin and adrenalin without effect. Autopsy. Stomach free from blood, but considerable old blood in the intestines. Inhalation pneumonia, which was probably the cause of death.

V. GENERAL CONCLUSIONS.

(1) The results of the operations in benignant disease of the stomach at the Massachusetts General Hospital and the Boston City Hospital between Jan. 1, 1898, and Jan. 1, 1904, are as follows:

	Number of Cases	*Deaths*	*Well*	*Rel'd*	*Not Rel'd*	*Secondary Operations*
Chronic ulcers	21	5	7	4	5	8
Pyloric obstruction	21	5	9	3	4	2
Acute dilatation	1	1				
Perforation	18	13	5			2
Hemorrhage	10	10				1
Total	71	34	21	7	9	13

(2) Surgical intervention in gastric hemorrhage should be considered even before it is urgent and the surgeon should jointly with the physician

watch the course of the patient. Cases of gastric hemorrhage entering the accident room should be seen as a rule by a physician as well as a surgeon. Operations upon females under thirty years of age should be most conservatively advised, since death under medical treatment is rare. This generalization, however, should not unduly influence consultants in a case of repeated hemorrhages threatening life, even in a patient below this age. Time should not be lost during an operation in seeking the bleeding point, but gastro-enterostomy should be performed.

(3) Mortality in operations for perforation of the stomach is chiefly dependent upon the length of time intervening between perforation and operation and the virulence of the infection. To lessen the mortality, house officers should report suspected cases simultaneously to the physician and surgeon on duty, or their substitutes, and should obtain permission for a possible operation from the patient or friends.

(4) Patients with chronic ulcers of the stomach or strictures of the pylorus should be jointly watched by the physician and surgeon. The surgeon should know the patient before being compelled to operate. Postponement of operation after it is indicated is dangerous, owing to the possibility of hemorrhage, perforation and exhaustion.

(5) Errors in surgical technique occurred, which in subsequent operations will presumably be avoided. Methods of operation were chosen which in the light of the experience of to-day would be considered unsuitable. Together these classes of cases account for about half of the deaths.

(6) The seventy-one cases were operated upon by twenty-five different surgeons — an average of one case to each surgeon in twenty-five months. It is reasonable to conclude that the mortality would have been less if each surgeon had had more experience.

THE UNION OF THE TEACHINGS IN CYSTOSCOPY AND MICROSCOPY.

BY FRANK M. JOHNSON, M.D., BOSTON.

AN adage of an earlier time still rings with the same truth and its forcible meaning to-day. It was then the thought had birth that "in union there is strength." Thus from a medical standpoint might its application be converted to carry out the peculiar characteristics of these two adjuvants in our investigation of the diseases of the bladder and the kidneys. It is not the intention at this time to enter into the minute details of the methods used, or descriptions of various instruments, but rather to bring perhaps more forcibly to your attention and consideration the value of suggestions to be gained when in harmony the microscope and cystoscope can give to us more clean-cut and definite knowledge. Before instrumental interference is demanded or warranted, the wise procedure is to obtain a complete record from an exhaustive chemical and microscopical analysis of a specimen of urine. By this step a diagnosis is obtainable that will most likely approximate the conditions to be met with.

From the number, condition and appearance of the epithelia present, the presence or absence of casts, mucus, red blood corpuscles, pus corpuscles, connective tissue shreds and the varied forms of crystalline and amorphous sediments, — all these with the data of clinical history, in a certain case, will repay by the value of the deductions that are now far less difficult to surmise.

If a doubt might remain, it is then that the cystoscope will readily prove or disprove the microscopic findings. The tiny brilliant electric light, in conjunction with delicate lenses, gives to the observer vivid pictures and often clears up mysteries that were perplexing.

A growth is discovered that before gave no symptoms or signs of its existence. A clever instrument, lately devised by Dr. Follen Cabot of New York, enables an operator to secure a small piece of such a growth, and then our microscope will reveal its nature, or a fragment of a calculus is caught up, and its composition soon determined. Again, with angular or straight observation telescopes, all parts of the bladder can be viewed. Various grades of inflammatory origin can be seen and exact conditions realized.

Now perhaps it is fairly said that the microscope first gives permission, and then may demand the cystoscope as its aide-de-camp. May the day come, and that quickly, when such examinations as have been noted play their important parts in our routine practice; may our microscope receive the consideration that its teachings merit! No doubt a human life cannot nor will not last long enough to make the master of any person who may attempt to solve all the problems, all the riddles and all the kaleidoscopic transformations that lie within the minute drop — under the fragile crystal. Errors arise due more often to the lack of complete understanding on the part of the observer than to any fault that could possibly escape detection in a finely made instrument. Each and every object must meet with recognition, and relative values of the more important elements must have our careful consideration. The surgeon whose time is absorbed with many operations, the general practitioner who has no moments he may call his own, yes, even the successful follower of some special subject, is forced to rely upon some one else and accept his conclusions. The necessity of true, impartial, microscopic findings, however, will still constitute a factor of mighty value.

This same thought can apply again to the cystoscopic revelations. Both these measures require time, patience and a long experience. Can one in a pardonable enthusiasm overestimate their true worth? At the present time the most important rôle played by the microscope and cystoscope is in the examination of the kidneys. With the catheterization through the

ureters, and the microscopical examinations of the separate urines, a vista of new thought is opened, whose field of usefulness is large and wide and whose possibilities are almost beyond comprehension. Here will it be found, that before a kidney is removed the surgeon must know the absolute conditions of both kidneys, or perhaps the location of a calculus or of growth in the bladder and its character. A very few out of the many doubtful phases may be dispelled by these methods of research from a surgical aspect. For a moment then, only lightly touching this phase, we turn to a large number of patients who apply for medicinal treatment for alleviation of their pains, distress and exhausted nervous conditions. When the true realization has not been granted to the physician, who certainly has done everything in his power, yet when medicinal remedial measures have been without avail in either giving nature a chance to cure, or of completely alleviating the stubborn symptoms and their sequelæ — let it be said frankly and squarely that lavage of the pelves of the kidneys with appropriate medicated solutions given carefully and each change and effect noticed will, in the majority of our cases, either eradicate or certainly will ameliorate the disturbing influences created by a chronic pyelitis, or a pyelo-nephritis or cirrhosis, those of lithemia or an irritative oxaluria; these alone being simple examples of a thousand varied and complex conditions that may arise.

These few suggestions are offered with the hope that they will awaken a broader and keener interest, that they may appear worthy of deliberate consideration, and that each and every true student, who has devoted his life to a beloved cause, can, if he will, find helpful aid and gain a clearer vision from the keener sense of a better understanding through this union of thought in the teaching of these two most valuable and, may it be said, inseparable companions, — the microscope and cystoscope.

Clinical Department.

A CASE OF UNIRADICULAR BRACHIAL PALSY AFFECTING THE FIFTH CERVICAL NERVE.

BY JOHN E. DONLEY, M.D., PROVIDENCE.

The following case, which was referred to me by Dr. Frank H. Jackson, would seem to be worthy of record, since it probably represents a very rare palsy of the brachial plexus:

Miss C., a young woman of twenty, a book-binder by occupation, came under observation complaining of disability and of some pain in her left upper arm. Her family history is unimportant, except for the fact that her father suffers frequently from attacks of severe articular rheumatism. She herself has always enjoyed good health with the exception of an attack of malaria of one week's duration, five years ago, and her appearance in general is that of a well-nourished and healthy girl. On Easter Sunday, ten weeks before coming under observation, having exchanged heavy for light clothing, she took a long walk, and upon returning home complained of feeling very cold. On Monday a sharp pain appeared in her left shoulder and neck, and by Tuesday it had become more severe, and was especially intense at night. By Wednesday it had extended as low as the elbow, and the arm was somewhat swollen from the shoulder to the elbow-joint. On Friday the pain had involved the forearm and fingers, and at the same time the right arm became swollen and painful from the shoulder to the elbow, this condition persisting for a week, when the pain and swelling in the right arm and left forearm disappeared rapidly and have not returned. A week after the beginning of the trouble she put her arm in a sling, in which she carried it for three weeks, and only at the end of this time was it noticed that there was inability to flex the forearm or to move the upper arm, although she cannot tell how long this disability had existed before she became aware of it. From the first she received constitutional treatment for rheumatism, and at the end of eight weeks came under the writer's attention, when the signs of disease were as follows: There was paralysis with atrophy of the left supra- and infra-spinati, teres minor, deltoid, serratus magnus, both rhomboids and pectoralis major. These muscles did not react to faradism and gave quantitative changes to the galvanic current, contracting sluggishly to strong currents. The left biceps was perhaps a little weaker than the right, but showed no alteration to electrical stimulation. The atrophy in the deltoid, spinati, teres minor and rhomboids was severe. The scapula was winged, its lower angle approaching the vertebral column and its upper part being directed outward. The whole scapula was elevated. The acromion was uncovered and the head of the humerus had dropped from the glenoid cavity, an inch intervening between the acromion and the head of the bone. There were some thickening and adhesions about the joint, passive abduction and external rotation being partly restricted. There was no fluid in the joint. Voluntary abduction, external and internal rotation were absolutely impossible. The nerve trunks were not tender in the arm, but firm pressure over the plexus above the clavicle gave tenderness. There had never at any time been tingling, numbness or other paresthesia, nor had there been herpes zoster or any variety of skin eruption. Sensation was everywhere normal except over the lower deltoid region, where there was some blunting of sensibility to pain, tactile and thermal stimuli, the defect, however, not being marked. No affection of the brachialis anticus, supinator longus, triceps, subscapulasis or diaphragm could be discovered. There was no sign of disease in heart, lungs or other viscera.

Although we are acquainted with many cases of paralysis affecting several of the peripheral or proximal nerves, or as in the palsies of Erb and Klumpke, combined cords of the brachial plexus, the number of recorded cases in which the lesion has been limited to the individual spinal nerves is small, and the literature very meager.

Buzzard, in a recent article in "Brain," remarks upon the infrequency with which uniradicular palsies are mentioned, even in the extensive monographs upon the subject, and he quotes from Duval and Guillain, Secretan and others, whose only reference to the subject consists in the statement that uniradicular palsies of the brachial plexus are exceedingly rare. In the same contribution, Buzzard reports six cases,

three of them suggesting a lesion of the first dorsal nerve, two of them a lesion of the fifth cervical nerve, and one a lesion of both these nerves, and he suggests that this may be a coincidence, or it may point to a special susceptibility on the part of the lowest and highest roots of the brachial plexus. Wolfstein has recently recorded a case in which the lesion appeared to be limited to the first thoracic nerve, and our own case points to an involvement of the fifth cervical nerve, so that the observation of Buzzard as to the greater susceptibility of these nerves would seem to receive some confirmation.

The distribution of the paralysis in our case is interesting as affording evidence of the motor innervation from the fifth cervical root. It involved temporarily the biceps, and permanently the deltoid, teres minor, serratus magnus, both spinati, the rhomboids and the pectoralis major. There was no evidence of any affection of the spinal cord, no stiffness of the neck and no change in the neck muscles. The tenderness over the brachial plexus points to peripheral trouble, so that if we exclude multiple foci in several nerves, the site of the lesion must be as repre-

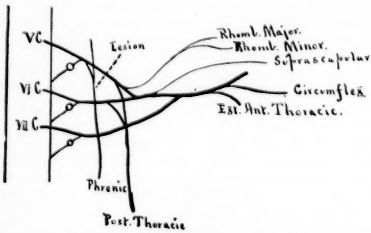


Diagram (after Buzzard). Illustrating position of lesion affecting fifth cervical nerve.

sented in the accompanying diagram. The nerves supplying in part the serratus magnus, the levator scapulæ and the rhomboids arise from the fifth cervical nerve, as it lies between the scalene muscles, and in order to account for the paresis in our case the situation of the morbid process must have been in that part of the root proximal from the origin of these nerves.

It is interesting to note that at the time of the examination, the levator scapulæ was not involved. The muscles affected support the observations of Herringham, which the writer has confirmed in the case of the suprascapular and circumflex nerves and the outer head of the median. Herringham concludes from his dissections as follows: (1) It is usually at the junction of the fifth and sixth nerves that the suprascapular nerve is given off, but it is not uncommon to find it springing from the fifth before the junction is made. (2) The sixth, therefore, exercises sometimes an extremely small influence and sometimes none at all over the spinati. (3) It appears that the pectoralis major does not usually receive from the fifth. (4) The biceps is supplied by the fifth and sixth seven times out of eight. (5) Thirty-one dissections showed no exceptions to the rule that the fifth does not enter into the outer head of the median. (6) The circumflex comes from the fifth and sixth; in six cases from the fifth alone; sixth branch often very small. (7) The teres minor is always supplied by the fifth alone. (8) The supinator longus and brevis are usually supplied by the sixth; the fifth is not always excluded. The muscles paralyzed in our patient appear to show that in this instance, at any rate, the fifth nerve gives motor innervation to the pectoralis major and a partial nerve supply to the biceps, for it will be remembered the biceps was paralyzed for at least a week, when it promptly recovered.

The sensory loss in the circumflex area was not unexpected, but the subjective sensations, or rather lack of them, are interesting and important, and apparently, as suggested by Buzzard, have some diagnostic value. Buzzard was impressed by the fact that in not one of his patients was there any sensation of numbness in the affected region, and not until it was pointed out to him was the patient aware of his sensory loss. Wolfstein had the same experience with his patient, and in my own case careful inquiry directed to this point failed to elicit any subjective sensation other than that of pain. The patient was somewhat surprised when it was demonstrated to her that there was a hypnesthetic area over the deltoid skin. It is quite possible, therefore, that this absence of subjective sensation of tingling and numbness may prove to be a valuable sign in distinguishing root from peripheral nerve lesions.

As to the etiology and pathology underlying the symptom complex in these cases, we are unable at the present time to advance beyond speculation. The term "neuritis" which has been applied to indiscriminate nerve lesions is a legacy from former days, when nervous pathology was oftentimes neither accurate nor careful of distinctions. We are beginning to understand that in the case of the spinal cord and peripheral nerves, as well as in the affections of the brain, we must distinguish between true inflammatory processes and those others, probably more frequent, of vascular origin. The work of Williamson, Singer and others has demonstrated that in many cases of what was formerly called "myelitis," the lesion is really a thrombosis due to disease of spinal blood vessels; and while as yet we have not the confirmation of the microscope for our hypotheses, it seems reasonable to assume by analogy that the same distinction should be made in diseases of the peripheral nerves. In our own case the symptoms are suggestive of a vascular foundation for the trouble, particularly the rapidity with which the pain and swelling disappeared from the right arm and the left forearm, this taking place during one night. And furthermore, the limitation of the lesion to a restricted area of one nerve seems to

favor a primary vascular process as against an inflammation, for in the latter case the nerve involvement would probably have been more extensive.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR SURGERY.

E. A. CODMAN, M.D., SECRETARY.

A MEETING of this section was held on Jan. 6, 1904, DR. F. B. HARRINGTON, in the chair.

The subject for discussion was

EARLY OPERATION IN DISEASES OF THE STOMACH

with especial reference to the following questions which were announced on the call for the meeting:

How often is persistent stasis of the stomach contents due to a purely functional condition?

Should exploration be advised as a routine in cases of marked stasis of the stomach contents?

Comparative results of medical and surgical treatment in cases of stasis.

DR. F. B. HARRINGTON: The object of this meeting is not a discussion of gastric surgery in general but of certain non-cancerous conditions of the stomach, such as gastric ulcer, stricture of pylorus, hemorrhage, dilatation of the stomach, etc.

We live in a medical community which takes pride in its advanced position in medical knowledge, and yet in the West, Mayo has operated on nearly 150 cases of benign disease of the stomach, doing gastric anastomosis with a mortality of 6%, and in Leeds, Moynihan has just reported 100 gastro-enterostomies for gastric ulcer with two deaths. In the well-known paper on "Gastric Ulcer at the Massachusetts General Hospital, 1888 and 1898," Greenough and Joslin say: "The mortality of 8% and the failure of medical treatment to effect lasting cure in 60% of the patients indicates the need of surgical intervention in other than emergency cases of this disease." Dr. Munro ("The Surgical Treatment of Gastric Ulcer") says: "In cases of pyloric obstruction, we have a purely mechanical problem with which to deal. No amount of medicine can overcome this condition; no amount of argument by the internist can convince the surgeon that such cases are best treated medically.". Mayo says ("Operations on the Stomach"): "The hope of the future lies in early exploratory incision, and the necessity for this depends upon clinical observation rather than laboratory methods, which too often only become valuable when the extent of the disease is beyond cure. Given a patient of middle or later life who begins to lose flesh and appetite and suffer from indigestion without apparent cause, the possibility of cancer should be considered; and if the source of the symptoms cannot be shown within a few weeks, the situation should be explained to the patient and the choice between exploration and procrastination allowed him."

The mortality from gastric surgery will always be high in advanced cases of malignant disease and in cases of non-malignant disease in greatly enfeebled subjects when operation is done as a last resort. Much of the operating in this community has been of this latter sort, and the results must necessarily be less encouraging than operations on more favorable subjects.

A mortality chart prepared by DRS. F. T. MURPHY, G. O. CLARK and F. B. LUND was then exhibited and explained. This chart compared the reported statistics of Mayo with the actual mortality of a similar series of statistics compiled from all the stomach cases operated on at the Massachusetts General and Boston City Hospitals. It had been intended that Dr. Murphy should have given a more detailed explanation of this chart, but owing to his absence the explanation was made by Dr. Codman, who said that the object in thus contrasting the immediate results of the stomach cases done in Boston with those of Mayo, Moynihan and others, was to arouse more general interest in gastric surgery. Although in the cases of the above-mentioned surgeons the results might be expected to be better by a considerable per cent from the mere personal skill and experience of the operator, yet he thought that the main reason for the relative greatness of our mortality was due to the character of the cases which came to the operating table. Even considering the fact that the operations in the Boston hospitals were done by a large number of relatively inexperienced operators, who each had but a few cases, and that the operations were in almost every case *last resort* operations, the mortality as shown by the chart was not so very great, except in the malignant cases. Even in the malignant cases for the five years ending with 1903, only seven of the eighteen gastro-enterostomies at the Massachusetts General Hospital died. One of these Dr. Codman operated on himself as an emergency on account of perforation of a malignant ulcer. The other six cases were in very advanced malignant disease and most of them had palpable tumors.

Owing to the discussion aroused by the meeting, Drs. Joslin, Lund and Murphy were interested enough to prepare a detailed paper[1] on the non-malignant stomach operations at both the larger hospitals in the last five years, with especial reference to the end results.

DR. F. PFAFF: Your secretary requested me to answer especially the second question on your program, — Should exploration be advised as a routine in cases of marked stasis of the stomach contents? To answer this question briefly I would say absolutely not before medical treatment has been tried to either relieve or cure the stasis of the stomach contents. Why should not an exploration be made in cases of marked stasis of the stomach contents? Stasis of stomach contents is always due to motor insufficiency of the muscular apparatus of the stomach. Motor insufficiency may be caused by many different factors which can be completely relieved, even after marked stasis of many years, by medical treatment. I say motor insufficiency is the general cause of all cases of stasis of the stomach contents. It may be due either to muscular relaxation of the muscular apparatus, the muscle becoming too weak to expel the stomach contents in normal condition at the normal time. The stomach at first is of normal size, but later, due to stagnation of food, we get permanent enlargement of the stomach. Muscular insufficiency may be further due to impossibility of the stomach contents to get out through a narrow orifice. In such cases the muscles of the stomach may be hypertrophied and yet insufficient. The cause may be either intragastric or outside of the stomach, as in cases of gallstones, adhesions, etc., but even in such cases we may sometimes be able, by medical treatment, to relieve the stasis, and not only get again normal expulsion of food contents, but the patient may also gain in weight. Very often we see stasis of the stomach contents due to general conditions — gluttony, malnutrition, pro-

[1] This paper forms the leading article in this number of the JOURNAL.

longed fever, etc., We find stasis of the stomach contents much oftener than is generally admitted. I make it a rule to always examine the motor power of the stomach, no matter what the condition complained of by the patient is — not so much stress to be laid on the chemical condition of the stomach contents as the motor sufficiency or insufficiency of the stomach.

The statement made by the authorities abroad to the effect that if one finds stomach contents present seven hours after a test meal the case is one of motor insufficiency does not apply to all of the cases seen here.

American people as a rule eat greater quantities of food than they do abroad, especially at night, the stomach naturally becomes accustomed to a relatively greater amount of work, and consequently if you give them a light test meal subsequent examination fails to reveal evidences of motor insufficiency.

I have found by experience in treating my patients here, that the best methods to use in giving the test meal is to have the patient eat a dinner at night and then wash out the stomach the next morning, some twelve hours later. If then there is any food present, you may be sure the case is one of motor insufficiency.

My main object is to find out the cause of the stasis, and according to the cause I arrange the treatment. First of all a suitable diet is to be given. Lavage is only indicated in very marked stasis of the stomach contents, light stasis we can get rid of with diet. The more intelligent the patient, the better the results. If after months and months of trying the patient has not gained in weight, and the stasis has not decreased, then surgical treatment may be resorted to. First of all, to my mind, medical treatment, then surgical. Abroad operations are done much less often now than fifteen years ago.

DR. M. H. RICHARDSON: I have little that is new to say on this interesting subject. I was impressed early by the great anatomical advantages of the stomach for successful surgical operation, especially by the splendid results of even the most extensive surgical operations upon healthy individuals. By *healthy individuals* I mean those whose general condition is favorable for operations upon a purely limited disease. I should have said in prefacing these remarks that I have nothing to say with reference to the first question. With regard to the second question, I think nothing can be added to what Dr. Pfaff has already said. As to the indications for early operations, my experience is that if the patient is in good general condition the mortality from the most extensive surgical operations is small; while, if in a poor general condition, the mortality, even from a comparatively trivial operation, is great. In the former case the results are splendid; in the latter, deplorable.

I have to-day looked over in my card catalogue the collection of stomach cases that I have had in the last fifteen years. A brief glance at these cases shows, first, that the mortality in operations upon the stomach is caused by the patient's poor general condition, and not by the operation. The mortality in the tabulation before us, as all will admit who have seen the cases, has been dependent directly upon the advanced cachexia at the time of operation. In gastric cancer especially, the mortality from simple exploration with the finger has been in my own experience considerable. In many cases deaths have been recorded as caused by exploration when the patients would have died in a very short time if they had not been operated upon at all. The mortality in these exploratory operations for hopeless cancer shows nothing at all except that in advanced cachexia it is necessarily great. To compare in this table, or in my own cases, the dangers of operations upon a stomach extensively diseased with cancer with the dangers of resecting the pylorus in an individual in comparatively good health suffering from a benign stenosis of the pylorus is unfair. The latter has been a very successful operation in my own experience, even in cases in which we have made a complete pylorectomy. I have not the least doubt that if we could take healthy individuals under fifty or sixty — patients whom we describe as favorable for operation — the mortality, even of resection of the pylorus or of the stomach itself, would be very encouraging. My own experience bears out this statement. Many explorations for extensive cancer, as I have said, are fatal, even if you do nothing beyond making a simple incision. In resection of the pylorus for benign strictures from foreign bodies, corrosive poisons, etc., the mortality is small and the outlook most encouraging. The mortality after operations for other and rarer conditions, if the patient is in good condition, is small, even when the dissection is most extensive.

These remarks introduce the question: What are the early indications for operation? We should, I think, consider first the disease of the stomach which is perhaps the most common — cancer. I am convinced that, with the application of present knowledge and experience at the hands of men the most skilful in diagnosis of gastric diseases, seldom can the diagnosis of cancer of the stomach be made early enough for a permanently successful complete excision. I say this with profound respect for the skill of the most skillful. My conviction is that we must operate before the diagnosis can, from the nature of things, be positively made. The ultimate results in cancer of the stomach are bad enough even in cases which we discover accidentally during explorations for other lesions. All the patients with cancer of the stomach that I have operated upon are, I believe, dead, except one whom Dr. Joslin and Dr. Pfaff will remember, and another in whom I discovered the disease in exploring a gall bladder. When the diagnosis of cancer of the stomach is made by the discovery of a tumor, there is, in the great majority of cases, no use in operating at all. Indeed, in my experience, a perceptible tumor is almost a contra-indication for operation. The earliest indication for operation in cancer of the stomach is a strong suspicion of that disease. The mortality from exploration itself in that early stage is extremely small, although there always must be some mortality in abdominal exploration — however brief.

With reference to the indications for operation, in patients whose symptoms are comparatively trivial but prolonged and obstinate, I am convinced that the earliest indication for surgical intervention in this class of case is the failure of medical treatment under the direction of skillful physicians.

This subject is extremely interesting to all surgeons. While we should strive to be in the front rank in the surgical treatment of gastric diseases, there should be, I think, on the part of some at least, a restraining conservatism rather than a frequent resort to such operations as gastro-enterostomy for trivial symptoms. We should know, definitely and unmistakably, the permanent results in a large number of cases in which this operation has been performed for gastric atony, *e. g.*, as compared with medical and palliative treatment of these cases.

DR. A. T. CABOT said that he understood the term "persistent stasis" to mean a stasis which is not relieved by medical treatment, or if so relieved soon recurs. Defining "persistent stasis" in this way, he felt that it was rarely a purely functional condition. When this stasis is so pronounced that the stomach

fills up and is obliged to empty itself by vomiting once or twice a day, it is evident that some mechanical condition or obstruction must exist, and such a stomach should be operated upon at once.

When the stasis is less pronounced than this, of course, medical treatment may be given a somewhat longer trial, but if it constantly fails to afford permanent relief, surgery should not be too long delayed.

He said that he should like to hear from some of the medical practitioners as to the permanency of results that they obtained by their treatment of these cases of stasis. What, in short, they expected to accomplish, failing in which, they are prepared to turn their patients over to the surgeon. He said that his feeling was that the surgical statistics in this neighborhood were bad because the cases brought to the surgeon had been unfavorable. That it seemed to him that if the medical men throughout the community could be convinced that surgery does offer sure relief in these cases, and would learn to recognize earlier the cases in which medical treatment is not likely to prove successful, he was sure that many more surgical successes would be accomplished in gastric cases.

Dr. J. T. Bottomly: (1) How often is persistent stasis of the stomach contents due to a purely functional condition?

In the fairly large experience of my colleague, Dr. Munro, and in my own brief experience in stomach cases, we have yet to open an abdomen as an exploratory measure in cases with symptoms of gastric stasis and find no pathological or mechanical cause for the trouble. Perhaps, I should modify that statement a little and say that, if we have found no cause for the symptoms, drainage of the stomach by gastro-enterostomy has in the vast majority of cases given such satisfaction that we could onlly conclude that some cause other than a functional one was at the bottom of the trouble.

(2) Should exploration be advised as a routine in cases of marked stasis of the stomach contents?

It is our belief that exploration should be thought of not only as a routine but as an *early* routine measure. I want to lay a special stress on "early" as a matter of justice not only to the surgeon, but what is most important, to the patient. Given a surgeon familiar with the technique an exploratory operation of such a nature in a patient in good, even in fair, condition has but little danger attached to it. This holds true, even if a gastro-enterostomy is done. But this presupposes a patient in at least fair condition, and does not hold good for patients who come to the surgeon in a half-starved, weakened condition.

Moreover, our operations have often disclosed a state of affairs that no man with our present means of obtaining knowledge could possibly foretell, — such as dilated or sagging stomachs due to adhesions about the pylorus, about the duodenum, about a chronically inflamed gall bladder, etc., — cases in which one could not possibly foretell the cause of the stasis, cases in which no amount of medical treatment could have any lasting effect, but in which surgical measures can and do afford not only marked but immediate relief.

(3) Results.

Surgery of the stomach is still comparatively young. We do not get brilliant results in all cases. It is only fair to say that we get good, most satisfactory results when we get the cases in fairly good condition. Most of the deaths in stomach surgery are caused by the condition of the patient when he gets to the surgeon, and not to the operation itself. Statistics do not always tell the whole story. We must know conditions before we can pass judgment on the merits of a given form of treatment. Both sides should be fair in this matter. What we are looking for is the good of the patient; this is the common ground on which both sides stand. We must admit with Mayo that there is certainly a time in the history of cases of stomach trouble when medical treatment is no longer useful. When does that time come? In all justice to everybody it comes before the patient has reached a state of anemia and weakness in which he is in no condition to undergo what might otherwise be a simple operation.

There is much truth in what Murphy says, and I want to quote a few words of his: "On the basis of frequency with which surgical diseases of the stomach are brought to the surgeon's notice, we may divide them into: (*a*) gastric carcinoma; (*b*) gastric ulcer; (*c*) pyloric obstruction; (*d*) pyloric retention; (*e*) gastroduodenal or pyloroduodenal lesions.

"If surgery is to accomplish for the stomach all that it is capable of, the frequency with which surgeons deal with the stomach must be for lesions in substantially the reverse order, except in the class of gastroduodenal disease, — *i. e.*, to obtain the greatest results from a prophylactic as well as therapeutic standpoint. The order of frequency with which the surgeon should be consulted must be — (1) pyloric retention; (2) pyloric obstruction; (3) gastric ulcer; (4) gastric carcinoma; (5) gastro-duodenal lesions." We must, in other words, get at cases early. Improvements in technique will probably not aid us greatly. The gain must come through earlier operation. Mayo Robson reports 101 cases of posterior gastro-enterostomy with 3.9% mortality and 21 cases of pyloroplasty without a death. Most of his deaths were due primarily to the poor condition of the patient at the time of operation.

STATISTICS.

The following is a condensed table of the operations performed for gastric troubles by Dr. Munro and myself. Most of them were done at the Carney Hospital and the great majority of them by Dr. Munro. By "recovery" in the table, recovery from the operation only is meant. It does not always signify permanent recovery.

	Number	*Recovery*	*Death*
Perforating ulcer	6	3	3
Pyloroplasty	1	1	
Pylorectomy	1		1
Jejunostomy	2	2	
Gastrectomy (partial)	3	2	1
Penetrating wounds	2	1	1
Gastrostomy	4	4	
Gastrotomy	1	1	
Gastroduodenostomy	2	1	1
Gastro-enterostomy	45	38	7
Shortening gastrohepatic ligament	3	3	
Exploratory	9	8	1

Dr. M. P. Smithwick: If six hours after the heaviest of the three meals the stomach of a well-fed person isn't empty, it is slow-acting. If after the same period it cannot pass onward breakfast or lunch, there is stasis. If it isn't empty after the twelve or more hours before the morning meal, there is marked stasis.

In the dilatable, atonic stomach, so often the result of nervous exhaustion, food may be present constantly from breakfast until the evening meal, but not in any great amount before breakfast, unless there is considerable dilatation or marked ptosis.

Persistent, marked stasis is not often due to a purely functional condition, and justifies exploration. If, in the absence of any condition demanding further operation it is decided not to treat the motor insuf-

ficiency surgically, the confidence gained by exact knowledge is worth the risk from exploration.

Unsuspected conditions unsuited for medical treatment may be found, or conditions, like ulcer, requiring special precautions if treated medically. In some of these cases stasis may be the only striking symptom. The great variation in the clinical picture presented by the same condition in different cases necessarily renders diagnosis difficult and uncertain. Uncertain diagnosis means inappropriate treatment and perhaps unnecessary risk. Early exploration when necessary for diagnosis is conservative. The possible disadvantage of operations which, like gastro-enterostomy cause permanent alteration of the digestive tract, compel us to look beyond the mortality statistics. If medical treatment is available and promises ultimate ability to take enough food for proper nourishment, surgical interference is inadvisable, but we have no right by withholding surgical aid to make hopeless invalids of those who cannot be properly nourished without operation.

In cases of persistent stasis so marked that the stomach must empty itself largely by vomiting, immediate operation should be urged. No case of stasis should die of starvation.

DR. C. L. SCUDDER: I have been seeing a number of cases of gastro-enterostomy recently, and have been interested in them not only as bits of surgical procedure, but because there were about the stomach in almost all of these cases lesions which the physician did not recognize previous to operation as causative of the symptoms. When these lesions have been removed or relieved by operation, the symptoms have disappeared.

The cases of so-called chronic gastritis, sour stomach, chronic indigestion, biliousness, those general symptoms in which the physician may find no distinct physical signs, no great diminution or increase in HCl, no marked stasis of stomach contents, and in which the percussion may not determine that the stomach is dilated or that there is a gastroptosis, in those cases there will be found certain physical conditions which are amenable to surgical interference. It is in cases of this kind that Mayo is operating. In the group of cases I have been watching this winter there were adhesions about the pylorus or posterior surface of the stomach or the pylorus would not quite admit the finger tip; there was a dilatation of the stomach or there was a falling down of the stomach, sometimes not detected previous to the operation. It seems to me that the physical examination of such patients does not determine the condition present; that the early operation discloses a living pathology which is defining more and more proper surgical procedure.

DR. J. G. MUMFORD: In this investigation [2] we are after facts regarding the results of methods of treatment. A considerable number of cases treated *surgically* have been tabulated, with what results as regards the cure of disease and on mortality you are more or less aware. On the other hand, so far as I have been able to learn, satisfactory tables of *medical* treatment are not accesssible.

The discussion to-night centers around the question of stasis, which is usually associated with and dependent upon obstruction with dilatation.

I am at present engaged in a study of digestive disorders, for another purpose than to present it at this meeting, and my investigations are still far from complete; so that what I may say here must be taken in a qualified sense only, but such as they are the apparent facts are suggestive.

I found recorded in the clinical catalogue at the Massachusetts General Hospital 122 *medical* cases listed as "gastric dilatation"; no other diagnosis being made, probably because definite diagnosis in these cases was impossible; the presumption, of course, being that the dilatation was due to pyloric obstruction, malignant or non-malignant, though some few were called "atonic," and in very many of the cases, with our better knowledge of to-day, doubtless a correct diagnosis would now be made. It is an interesting fact that very many fewer cases of dilatation were reported fifteen years ago than to-day. These hospital cases cover fifteen years. In 1888 there was 1 case; in 1889 there was 1 case; in 1890 there were 3 cases, and so the annual number rises until 1895, when there were 17 cases. Then it sinks again until, in 1902, there were but 9 cases, and in the first six months of 1903 but 2 cases. These facts suggest that fifteen years ago gastric dilatation was infrequently recognized, and that in recent years the true cause of the dilatation has been ascertained and the cases recorded under a more accurate diagnosis than "dilatation" merely.

The average stay of these patients in the hospital was three weeks; the longest individual stay was eight months. It is my purpose to follow up all of these cases and ascertain their subsequent histories; but from the hospital records, at the time of discharge, we learn the following facts:

Of the 122 cases, 2 died in the hospital; 17 left the hospital without relief of symptoms; 98 had improvement or partial relief of symptoms; and only 5, or about 4%, were discharged symptomatically "well" (one of these returned for further treatment). Of these 122 cases, 87 or 71.3% were males; 35 or 28.6% were females.

These facts suggest the possibility, contrary to the usually accepted figures, that gastric ulcer, the commonest cause of pyloric obstruction, may be more frequent in males than previous statistics have stated.

The total number of cures at the time of discharge from the hospital is surprisingly small. It remains to be seen what improvement took place in the 98 cases who left the hospital, relieved only; what their length of life may have been, and what the cause of death.

DR. E. P. JOSLIN: About the medical results of these cases of stasis we know that some of them will improve, but many will not. I have only two stasis cases of marked severity which I have followed for two years or longer that are still all right. All the other cases I have had have been turned over to the surgeon.

[2] Owing to lack of time this was not read at the meeting.

Recent Literature.

A Practical Treatise on Medical Diagnosis for Students and Physicians. By JOHN H. MUSSER, M.D., Professor of Clinical Medicine, University of Pennsylvania; Physician to the Philadelphia and the Presbyterian Hospitals, etc., etc. Fifth edition, revised and enlarged. Illustrated with 395 wood cuts and 63 colored plates. Philadelphia and New York: Lea Brothers & Co. 1904.

We have already noticed Dr. Musser's Medical Diagnosis several times, and have only to add to words of previous commendation the statement that the present edition brings the book thoroughly abreast of the latest investigations in the field to which it is devoted.

The rapidly recurring editions testify to a deserved popularity among students and physicians.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, AUGUST 4, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

Subscription Terms: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 and 29 Bromfield Street, Boston, Mass.

THE ALLEGED PHYSICAL DEGENERATION OF THE ENGLISH NATION.

Notwithstanding the fact that the expectation of life has materially increased in England, as shown by the Registrar-general's figures, and by those of several medical officers of health in English towns,[1] it is still urged that the standard of health has deteriorated, and that the proportion of weakly persons surviving to adult life is greater than formerly. Newsholme has answered this statement in his comments upon the Brighton Life Table for 1881–90, and now after ten years more of experience in public health work, he replies to these propositions more definitely as follows:[2]

The principal reasons which have led so many to consider that the physical condition of the English population is deteriorating are the following:

1. The survival of a large number of adults, who would formerly have died of infectious, including tubercular, diseases, or of other diseases which now yield to medical and surgical skill.

2. The alleged increased stress of modern life.

3. The fact that the English population has become increasingly urban.

4. Industrial have in a large measure superseded agricultural occupations, and home industries have given place to those carried on in factories and workshops.

"1. It had been claimed that the operation of the law of the survival of the fittest had been impeded by the work of public hygiene, with results unfavorable to the health and vigor of adult life. This argument assumes that weakly children are more prone to attack by infectious diseases than robust children, an assumption which experience does not confirm. These diseases appear to attack the majority of children, weakly or robust, who are exposed to their infection. It might be reasonably expected, therefore, that with a decrease in the total deaths from infectious diseases, there would have been at least a corresponding decrease in the number of those who are left maimed by an attack of one of these diseases to survive to adult life. The weeding out of weakly lives, caused by the greater mortality among weakly children suffering from an infectious disease, is, in my opinion, counterbalanced by the greater number of children made weakly in former times by non-fatal attacks of an infectious disease.

"So far as consumption is concerned," Newsholme also says, "it may now be affirmed that in all probability any possible national deterioration caused by the survival of tubercular persons is at least counterbalanced by the improved health and physique of that large portion of the population who formerly would have become tubercular, but now remain free from this disease, as well as of the general mass of the population.

"2. *Stress of modern life.* — It is doubtful if increased strain exists in the community as a whole. Each adult, as he becomes year by year more deeply involved in the battle of life, comes to the conclusion that the general strain of life in the community is increasing, forgetting that the same causes operated as life advanced in previous generations. There is reason for thinking, with Dr. Pye-Smith, that much of the evil ascribed to 'over-pressure' is really due to over feeding and drinking.

"Assuming, however, that over-pressure exists in certain stations of life, *e. g.*, among city merchants, medical men, etc., it cannot be said to exist generally among professional men. Clergymen, lawyers and civil servants are, as classes, long-lived.

"Even assuming that over-pressure exists throughout the whole of the professional and mercantile classes, these do not form the mass of the community. The majority of the population belongs to the wage-earning classes, and the conditions of these classes will therefore necessarily have the greatest influence on the total result. Sir R. Giffin[3] shows that the wages of the agricultural laborer have increased, while his hours have decreased. In many trades, the workman gets from 50 to 100 per cent more wages than fifty years previously for 20 per cent less work. He sums up as follows: 'While the workman's wages have advanced, most articles he consumes have rather diminished in price, the change in wheat being especially remarkable, and significant of a complete revolution in the condition of the masses. The increased price in the case of one or two articles — particularly meat and house

[1] Annual reports of the Registrar-general of England and Wales. Similar figures for the population of Massachusetts were published in the Thirtieth Report of the State Board of Health for the year 1898, pp. 799–827.

[2] The second Brighton Life Table, based on the mortality experience of the ten years, 1891–1900, by Arthur Newsholme, M.D., Medical Officer of Health of Brighton, England.

[3] The progress of the working classes in the last half century. Inaugural address Royal Statistical Society.

rent — is insufficient to neutralize the general advantages which the workman has gained."

The author presents figures to show that the reduction of the death rate from phthisis in England has occurred almost *pari passu* with the reduction in the price of wheat. More than this, the English population has increased its standard of comfort and has become able to afford, not only more abundant, more varied and more wholesome food, but is also better clad and better housed than it has ever been in the past. It cannot, in short, be maintained, with any approximation to fact, that the majority of the English population live now under conditions of greater strain and stress, or that poverty is more prevalent than formerly.

In the tendency to rapid increase of urban populations, the author does not find evidence of national degeneracy of a decided character, for while the chances of acquiring infection are greater in town than they are in the country, this fact is balanced by the improved conditions under which indoor occupations are now conducted as compared with those of earlier periods.

The improvement in the expectation of life in recent years may be attributed to various causes; chiefly to the increased wealth and resulting comfort of the population, and the immense improvements in sanitation during the past thirty years.

Infant mortality has increased, not only in England but also in many American cities, and it is here that radical improvement may be attained by the introduction of measures designed to improve the methods and material used for infant feeding, since the artificial feeding of infants must be held responsible for a large share of infant mortality. Other means may be found in the establishment of day nurseries in large manufacturing districts and the improvement of sanitary conditions in the homes of the working classes.

BOSTON'S DEPENDENTS AND DELINQUENTS.

IN the appendix of the monthly bulletin of Boston's Statistics Department for April and May, 1904, are given certain interesting facts regarding the city's dependents and delinquents for the year 1903. The statement is made that these classes which are a public charge are so mixed that a division into those whom the city supports and those whom it only aids is extremely difficult. Aid, for example, is given to patients who pay, in the city and insane hospitals, but naturally such patients can in no sense be classed as paupers. Leaving such out of the account, there is a large class supported temporarily or permanently by the city. These include residents of pauper institutions, prisoners in city institutions, and Boston patients in the hospitals for consumptives, for epileptics and for dipsomaniacs. As a convenient classification those persons who received aid from the city or were supported by it for the whole or a part of 1903 are divided into sick, poor and criminals, although naturally such discrimination cannot be absolutely maintained. Estimating the population of Boston, Dec. 1, 1903, as 606,566, it appears that 9,537 individuals were supported or aided by the city on that date. Of this latter number 6,767 were in charge of institutions and 2,770 were in the receipt of permanent aid from the Soldiers' Aid Department. The proportion borne by the various classes of persons aided in December to the general population is given as follows: "Total cared for, 20,877 or 3.44%; sick, 3,659 or .60%; poor, 13,994 or 2.31%; criminals, 3,224 or .53%. Of the sick, 1,667 or .27% of the total population were in hospitals for general diseases, and 1,982 or .33% in hospitals for brain diseases. Of the total number cared for in the month, 11,572 or 1.91% of the population had indoor and 9,305 or 1.53% outdoor relief. Over 50,000 out-patients — not included in our tables — received medical aid from the Boston City Hospital."

Such figures and statistics are certainly illuminating. It is well for us from time to time to realize how widely disseminated the charity work of a great city becomes as its various departments develop. Classification is naturally in such matters difficult and at times impossible. It is, nevertheless, desirable to appreciate the fact that very many of those classed as poor or dependent without other reason are actually sick and should, as our methods of classification become more exact, be so recognized. Particularly must we protest against the tendency to regard the chronically infirm as totally distinguished from the more acutely ill. The definition of disease should be formulated, and all persons falling under this category should be regarded by the city authorities as sick and should receive the privileges accorded to this class.

SUICIDE IN NEW YORK.

ACCORDING to the reports of the Health and Police Departments the present year is likely to break all records for the number of suicides com-

mitted in New York City. During the first six months of 1904 there were over 450 suicides, a number which indicates a rate for the year of 224 to the million of inhabitants, as against 215 in 1903, 187 in 1902, 206 in 1900, and 150 (in the older city of New York) in 1890. If the relative proportion of suicides in the first half of the year is continued in the second, there will be over 900 in 1904, as against 806 in 1903, 772 in 1902, and 743 in 1900. The number of persons who have attempted suicide unsuccessfully during the half year just ended shows a similar increase over 1903, the figures being 264 for the current half year, as against 231 for the same period last year. At the same time, the suicide rate in New York is still considerably below that in any of the large European cities. The steady and noticeable increase in the suicidal tendency is no doubt to be ascribed principally to the increasing density of the local population and the rapidly growing complexity of metropolitan life, with its constant influx of ignorant foreigners but poorly equipped for a new struggle for existence. Almost two thirds of these suicides are among the foreign born. One fourth are Germans, and in commenting on this a prominent officer of the Health Department attributes it largely to the fact that, according to his observation, a considerable number of the Germans do not profess any established religion and have no particular scruples against taking their own lives. Also they are a "temperamental" people, highly sensitive to adversity. The French are also much addicted to suicide, but they form proportionately so small a part of the city's population that the total number of their suicides is small. The Irish, while constituting almost as large an element in the population as the Germans, do not furnish one third so many suicides. In the first quarter of 1904, 70 were natives of the United States, 58 of Germany, and 16 of Ireland. In the same period the principal means employed for self-destruction were as follows: Poison, 99 cases; shooting, 42; gas, 35; hanging, 20. Two fifths of those committing suicide now use carbolic acid, the reasons for this being assigned as its cheapness, its effectiveness and promptness, and the ease with which the drug can be obtained. A much larger proportion of men than women commit suicide, and the percentage of men appears to be increasing. During the past three years women have furnished only 27% of the suicides in New York, while in 1896 the percentage was over 39. Of those who attempt suicide but do not succeed a larger proportion are women, about two fifths of the attempted suicides being among females.

REPORT OF GOVERNMENT LABORATORIES IN MANILA.

We are glad to call attention to the second annual report of the superintendent of Government Laboratories in the Philippine Islands, taken from the fourth annual report of the Philippine Commission. The volume comprises 622 pages, and is most elaborately and attractively illustrated by numerous full-page half-tones. A glance at Dr. Freer's report discloses the increasing work which these laboratories are accomplishing in the determination of the innumerable questions presented by the diseases of the Philippines. Considering the very short time during which work of a scientific sort has been attempted, it is clear that a beginning has been made which must develop into most important results. Among other things which show the development of the work as a whole is the growth of the library which has been naturally somewhat retarded, owing to the difficulty of getting complete files of the various journals needed. At present the library boasts a large number of periodicals, including back numbers of the more important scientific publications in medicine and many fields of chemistry. In addition to these, subscriptions to foreign scientific and medical periodicals bring all the recent work of value within reach of the laboratories. Periodicals in the field of industrial chemistry and veterinary medicine are particularly needed for obvious reasons. The botanical laboratory, recently started, makes also a further demand on current literature. It is hoped that in the future this library, so auspiciously started, will be in general used by educational institutions throughout the Philippine Islands, and particularly will it be of advantage to native students who need the contact with modern scientific methods which such literature brings. As the report says, "An increasing number of Philippine students are now being educated in the United States, and it would indeed be a misfortune if upon returning to their native country they should be cut off from the literature which is most important in continuing their mental growth." It is quite impossible in the space at our command to do more than call attention to the contents of this really interesting volume. It will well repay a careful perusal by men engaged in widely diversified branches of scientific research.

MEDICAL NOTES.

HOSPITAL FOR CANCER IN PHILADELPHIA. — It is reported that plans have been formulated for the erection of a large hospital in Philadelphia to be devoted to the study of cancer and allied disease.

SUMMER COURSES IN PARIS. — It is announced that for the brief period from September 19 to October 1, various courses and practical medical demonstrations will be given at the Hôtel des Sociétés Savantes and in several hospital services in Paris. A large number of subjects are offered, and much of the teaching is done at certain of the well-known Paris hospitals.

SANATORIUM FOR TUBERCULOSIS IN DENVER. — A sanatorium for the treatment of tuberculosis, built by Mr. L. C. Phipps in memory of his mother, has recently been opened. The location is at a height of more than five thousand feet above sea level, with ample grounds. At present the institution is capable of accommodating one hundred. It is intended for curable cases.

PLAGUE IN TEHERAN. — It is reported that plague is active in Teheran, with a mortality reaching many hundreds daily. Europeans are said to be abandoning their property and leaving the region, and the Russian government has ordered the closing of the frontier to prevent the importation of the disease.

DEATH OF AN ENGLISH PHYSICIAN FROM PLAGUE. — The death from bubonic plague of Dr. Noel Unsworth, assistant inspector of the Sanitary Department of the Egyptian Government, is announced. Dr. Unsworth had previously been employed in Egypt during the cholera epidemic in 1902, and more recently was on plague duty in the Delta. His illness lasted but three days.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, Aug. 3, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 30, scarlatina 11, typhoid fever 24, measles 16, smallpox 0.

QUARTERLY MEETING OF THE MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH. — The quarterly meeting of the Massachusetts Association of Boards of Health was held in Gallup's Island, Boston Harbor, July 28. Dr. Theobald Smith read a paper on the "Etiology of Leprosy," in which he discussed the history of the disease as well as our present knowledge of the subject. Dr. S. H. Durgin, Dr. Paul Carson, port physician, and Dr. H. W. Hill were some of those who took part in the discussion which followed on the general subject of leprosy.

PRACTICAL HEALTH EXHIBITION. — A practical exemplification of how to live has recently been given on the grounds of a club in one of the poorer sections of Boston. The exhibition was held under the auspices of various workers for the poor, among which the Association for the Relief and Control of Tuberculosis and the Health Education League were conspicuous. An attempt was made to demonstrate objectively various matters pertaining to health and proper methods of life. In one part of the grounds food was shown both in its natural and prepared states, and also what might be bought in the way of nutritious food for ten cents and lesser sums of money. An attempt was also made to illustrate certain chemical principles in relation to food. Elsewhere clothing for babies was illustrated graphically by two large dolls. The tuberculosis exhibit consisted of photographs of the State Sanatorium at Rutland and also the Sharon Sanatorium, with charts graphically representing the stages and spread of the disease. Outdoor treatment was illustrated by a tent and its appurtenances. Other exhibits were of a like practical nature, and addresses were also made by men prominent in charitable and hygienic work.

Obituary.

SIR JOHN SIMON, K.C.B., F.R.S., D.C.L., LL.D.

JOHN SIMON, born in 1816, became at the early age of twenty-four senior assistant surgeon at King's College Hospital, where, and at Greenwich, he studied for his degree. Two years later he wrote an essay which attracted wide attention, on "Observations regarding Medical Education." "His physiological essay on the "Thymus Gland," in 1847, gave him still more reputation, and after the publication of his "Aims and Philosophic Methods of Pathological Research" in 1847, he was appointed in the same year to the lectureship on General Pathology at St. Thomas's Hospital, where he endeared himself to the students as the personal friend and adviser of every one of the workers there.

He was one of a remarkable group of young men, including Edwin Chadwick, William Farr and the sanitary engineers, Lindley and Rawlinson, who early became interested in sanitary science, each of whose great usefulness measured nearly or quite half a century, four of whom received the coveted K.C.B., and to all of whom

civilization and humanity owe an immense debt of gratitude for the stupendous work which they did in general sanitary reform.

Farr's wonderful series of reports on vital statistics, begun in 1838 and continued for forty years, and Chadwick's masterpiece, a "Report on the Sanitary Condition of the Laboring Population of Great Britain," together with the wide-reaching legislation from 1837 to 1848, furnished the facts and the authority and gave the opportunity which Simon seized with that far-seeing wisdom, without which the laws might easily have remained without full effect.

He was health officer of the city of London from 1848 until 1855, when he accepted a similar position in the General Board of Health, the duties and powers of which in 1858 were transferred to the Lords of the Privy Council whose chief medical officer Simon became and remained until 1876. With his resignation the office lapsed. He was also, until 1876, Chief Medical Officer of the Local Government Board, created in 1871, in which he so thoroughly organized his department that it has continued in his methods ever since.

In the twenty-eight years of Simon's activity as a public officer his reports covered the whole range of public health with such clearness and force as to reach all classes. As edited and published by the Sanitary Institute of Great Britain in 1887 their eleven hundred pages are sufficient testimony to their paramount importance.

Simon was president of the Royal College of Surgeons in 1878 and of the Royal Society in 1879, and he held the highly-prized membership in the Atheneum Club. He was honorary member of various societies at home and abroad, and received honorary degrees from Oxford, Cambridge, Edinburgh, Munich and Dublin. He had been president of the Pathological Society, senior surgeon at St. Thomas's Hospital and member of the General Medical Council.

To great personal charm, Simon added a deep interest in people, great wisdom in selecting men for their work, marvelous perseverance and industry, surprising tact in dealing with the traditions and vested interests of an intensely conservative community, a delightful and forceful use of language which was both attractive and convincing, and a broad general culture.

After his resignation from active work at the age of sixty, he devoted himself partly to promoting measures of public utility in his chosen life-work, but more especially to art and general literature in which he had always been interested, and in parts of which, especially as regards the Orient, he became an authority.

His address before the International Medical Congress in 1881 on "Experiment as a Basis of Preventive Medicine" contained one of the strongest arguments in favor of vivisection.

Simon's generosity in giving full praise where it was due, to his assistants and to others, was a marked feature in his character, and enabled him to get the most efficient co-operation in all his wide and varied activities. In his "English Sanitary Institutions," a scholarly work of five hundred pages, published in 1900, he says that the modern demand for sanitary reform may be said to have begun in England in 1838, and that the successes which it gained in the next ten years were of so important a character that the story should be told in detail, adding, with characteristic self-effacement, "the story of the ten years is above all an account of the zealous labours of one eminent public servant, the present Sir Edwin Chadwick." During the succeeding quarter of a century Simon was easily the foremost power and influence in preventive medicine, and the monuments to his serviceable labors are to be found over Europe as well as throughout Great Britain and this country.

Miscellany.

OPERATION FOR PERFORATED GASTRIC ULCER.

According to the *Lancet*, the mortality after operation for perforation of a gastric ulcer appears to be diminishing. Mickulicz was the first to operate for this condition in 1880, but it was not till twelve years later, in 1892, that we have any record of a successful case, when Kriege sutured a perforation and the patient recovered. At first the mortality of recorded cases was very high, and in all probability the mortality of all cases treated by operation was still higher, for unsuccessful cases are never so readily recorded as the successful. Several factors have concurred in lowering the death-rate. Experience has taught us the best methods of operating, and practice has enabled us to operate more quickly, but probably the chief factor in lessening the mortality is the fact that cases are operated on at an earlier period after perforation, and as the length of the interval between the perforation and operation is the chief element in the prognosis, we must look upon any reduction of this interval as a potent agent in reducing the death-rate. Practitioners are more ready in invoking the aid of the surgeon now that they are acquainted with the value of early surgical treatment, and the public more readily submit to operation. It is not improbable that the mortality in hospital practice after operation for gastric perforation is less than in private practice, for in hospitals there is much less delay in preparing for an operation than is generally necessary when an operation has to be performed in a private house. In the present issue of the *Lancet* are recorded the notes of nine consecutive cases of operation for perforated gastric ulcer at St. George's Hospital. Eight of these patients recovered, and the only death occurred in a patient in whom perforation had probably taken place forty-eight hours previously, and who had had to travel about one hundred miles before operation. These results are excellent and reflect credit on the surgeons who performed the operations.

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, JULY 23, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Diarrheal Diseases.
New York . .	3,908,644	1,726	868	47.44	6.08	1.45	.75	32.73
Chicago . . .	2,021,086	538	213	38.66	4.65	.74	1.57	21.93
Philadelphia	1,407,968	482	195	38.38	6.02	.80	2.27	23.24
St. Louis . .	633,896	—	—	—	—	—	—	—
Baltimore . .	542,229	250	108	40.00	2.00	.40	2.40	25.20
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	409,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	161	—	43.47	5.59	2.48	6.83	24.22
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	88	36	40.90	2.27	*	—	34.08
Boston . . .	617,950	195	71	32.30	7.18	1.54	2.05	14.87
Worcester . .	136,925	28	13	28.57	3.57	—	—	17.85
Fall River . .	119,349	59	41	44.07	—	—	—	35.60
Lowell . . .	104,402	62	34	37.09	6.45	—	3.22	29.96
Cambridge .	100,998	23	7	43.48	8.70	—	—	21.74
Lynn	73,875	23	6	26.09	—	4.35	—	4.35
Lawrence . .	72,348	30	15	46.67	3.33	—	—	33.33
Springfield .	72,020	—	—	—	—	—	—	—
Somerville .	70,413	10	3	—	—	—	—	—
New Bedford	68,863	20	11	50.00	5.00	—	—	45.00
Holyoke . . .	50,538	17	10	47.05	1.17	—	—	41.17
Brockton . .	46,601	11	4	—	—	—	—	—
Newton . . .	39,310	4	1	25.00	—	—	—	25.00
Haverhill . .	39,061	13	3	15.40	7.70	—	—	7.70
Malden . . .	37,205	10	3	30.00	10.00	—	—	20.00
Salem	37,188	22	7	31.81	9.09	—	—	22.72
Chelsea . . .	36,499	12	4	16.67	—	—	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	17	5	11.76	—	—	—	11.76
Everett . . .	30,209	6	2	16.67	—	—	—	—
North Adams	29,201	7	3	28.60	—	14.30	—	14.30
Quincy . . .	26,798	6	1	50.00	—	—	16.67	16.67
Gloucester .	26,121	5	1	—	—	—	—	—
Waltham . .	25,797	9	1	—	11.11	—	—	—
Brookline . .	25,576	3	—	—	—	—	—	—
Pittsfield . .	22,870	—	—	—	—	—	*	—
Medford . .	21,956	6	2	50.00	—	—	—	33.33
Chicopee . .	21,692	10	2	10.00	10.00	—	—	—
Northampton	20,314	4	0	25.00	—	—	—	—
Beverly . . .	15,807	—	—	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	5	2	20.00	—	—	—	20.00
Adams	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	—	—	—	—	—	—	—
Newburyport	14,478	5	2	20.00	—	—	—	20.00
Woburn . . .	14,315	0	—	—	—	—	—	—
Melrose . . .	13,819	5	1	40.00	—	—	—	—
Westfield . .	13,809	11	7	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	4	1	50.00	—	—	—	25.00
Revere . . .	13,609	2	—	—	—	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody . .	13,406	—	—	—	—	—	—	—
Gardner . . .	12,324	3	2	—	—	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	1	0	100.00	—	—	—	—
Weymouth .	11,350	0	—	—	—	—	—	—
Plymouth . .	11,139	3	—	—	—	—	—	—

Deaths reported, 3,896; under five years of age, 1,680; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,621; acute lung diseases 206, consumption 389, scarlet fever 9, whooping cough 17, cerebrospinal meningitis 27, smallpox 1, erysipelas 4, puerperal fever 12, measles 17, typhoid fever 57, diarrheal diseases 1,045, diphtheria and croup 43.

From whooping cough, New York 5, Chicago 3, Philadelphia 2, Pittsburg 4, Lawrence 2, Melrose 1. From measles, New York 7, Chicago 2, Philadelphia 2, Baltimore 1, Pittsburg 1, Boston 1, Worcester 1, Lowell 2. From scarlet fever, New York 3, Chicago 1, Philadelphia 1, Baltimore 3, Pittsburg 1. From cerebrospinal meningitis, New York 22, Baltimore 1, Pittsburg 1, Worcester 1, Fall River 1, Marlborough 1. From erysipelas, New York 3, Chicago 1. From typhoid fever, New York 13, Chicago 9, Philadelphia 11, Baltimore 6, Pittsburg 11, Boston 4, Lowell 2, Quincy 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending July 9, the death-rate was 13.5. Deaths reported 3,948; acute diseases of the respiratory organs (London) 52, whooping cough 109, diphtheria 40, measles 182, smallpox 6, scarlet fever 32.

The death-rate ranged from 3.2 in Hornsey to 21.4 in Huddersfield; London 12.9, West Ham 12.8, Brighton 12.8, Southampton 12.1, Plymouth 16.0, Bristol 9.6, Leicester 10.7, Nottingham 13.2, Liverpool 18.2, Bolton 16.9, Manchester 17.9, Salford 16.2, Bradford 15.0, Leeds 14.8, Hull 13.8, Sheffield 13.7, Cardiff 7.7, Rhondda 14.5, Wigan 12.5, Merthyr Tydfil 15.8, Tottenham 6.9, Hanley 13.9.

METEOROLOGICAL RECORD.

For the week ending July 23, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S., 17	29.92	73	80	66	65	64	64	N	S	8	10	C.	F.	0
M., 18	29.92	73	78	68	67	72	70	N	S	5	9	F.	C.	0
T., 19	29.85	76	87	65	74	72	73	S E	S	2	12	C.	C.	0
W., 20	29.76	79	88	70	61	40	50	N W	N W	10	9	C.	C.	0
T., 21	29.86	75	84	66	48	52	50	W	N	12	9	C.	C.	0
F., 22	30.04	67	72	62	60	82	71	E	E	10	8	F.	R.	T.
S., 23	30.02	64	83	59	94	94	94	E	N	22	13	R.	R.	.36
☞	29.91		79	65			67							.36

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JULY 28, 1904.

GLENNAN, A. H., assistant surgeon-general. Granted leave of absence for fifteen days from August 1. July 22, 1904.

IRWIN, FAIRFAX, surgeon. Granted leave of absence for one month from August 15. July 26, 1904.

KALLOCH, P. C., surgeon. Granted leave of absence for twenty-two days from August 1. July 28, 1904.

MCINTOSH, W. P., surgeon. To assume temporary charge of Portland (Me.) Quarantine, in addition to other duties, during the absence on leave of Surgeon P. C. Kalloch. July 28, 1904.

GUITERAS, G. M., surgeon. Bureau letter of July 11, 1904, granting Surgeon Guiteras leave of absence for seven days from July 14, 1904, amended to read four days only. July 26, 1904.

MCMULLEN, JOHN, passed assistant surgeon. Granted leave of absence for one month from August 5. July 28, 1904.

GLOVER, M. W., assistant surgeon. Bureau telegram of July 13, granting Assistant Surgeon Glover leave of absence for seven days on account of sickness, amended to read five days from July 12. July 25, 1904.

WARD, W. K., assistant surgeon. To proceed to Bridgeton, Barbadoes, B. W. I., for duty in office of the United States Consul. July 12, 1904.

STILES, CH. W., zoologist. Detailed to represent Service at Sixth International Congress of Zoology at Berne, Switzerland, August 14–19. July 22, 1904.

SEAVEY, L. T., acting assistant surgeon. Granted leave of absence for fourteen days from August 8. July 27, 1904.

SMITH, EMMA F., medical inspectress. Granted leave of absence for thirty days from July 1. July 22, 1904.

BOARD CONVENED.

Board convened to meet at Washington, D. C., August 1, 1904, for the physical examination of an Officer of the Revenue Cutter Service, and an applicant for admission into said Service. Detail for the board: Assistant Surgeon General G. T. Vaughan, Chairman. Assistant Surgeon A. J. McLaughlin, Recorder.

PROMOTION.

L. C. SPANGLER, pharmacist of the third class, promoted to be pharmacist of the second class, effective May 28. July 25, 1904.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JULY 30, 1904.

F. M. FURLONG, passed assistant surgeon. Detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., August 5, and ordered to the "Chicago."

W. G. FARWELL, assistant surgeon. Ordered to the naval recruiting rendezvous, Boston, Mass.

J. F. MURPHY, assistant surgeon. Ordered to the "Hancock," temporarily.

G. H. BARBER, surgeon. Ordered to the "Hist," and to additional duty at the naval training station, Newport, R. I.

C. D. CATHER, assistant surgeon. Ordered to the naval hospital, New York, N. Y.

Original Articles.

OPERATIONS ON THE STOMACH, WITH REPORT OF CASES.*

BY JOHN C. MUNRO, M.D., BOSTON,

From the Surgical Clinic, Carney Hospital, Boston, Mass.

THE bulk of the work reported here has been done within the last year by Dr. Bottomley and myself at the Carney Hospital; but I have included all of my own cases of operation upon the stomach from the very first, although the earlier operations were done with much less confidence in technic and with a bad prognosis in many instances. Frequently patients were turned over to surgical care after having tried everything in the way of internal medication, with the feeling in the medical attendant, the surgeon and the patient, that the knife was offered as a last resort. The earlier cases were, so to speak, filtered through medical hands. Latterly this has been done away with to a certain extent, because we are able to control our own clinic much more independently, and the patients are referred to us directly for the decision whether surgery can offer relief or not. If we did not have the convincing end results of surgeons of large experience, like Mayo, Mikulicz, Robson and others, I should hesitate strongly about reporting so many recent cases. We do know, however, from the experience of these surgeons that in cases of chronic ulcer, mechanical stasis and cancer, operation offers the best outlook at the minimum expense, and I feel confident that a good proportion of our temporary successes will abide, provided we have utilized properly the technic that has proven of benefit up to the present time. Time is necessary to establish the value of any method of treatment, and in the earlier applications over-enthusiasm and ill-trained judgment serve to weaken the virtues of any form of therapeutics. We must be willing to modify and change our surgical treatment of ulcers, dilatations and carcinomata of the stomach as the need is demonstrated. But meanwhile surgeons must continue sifting and rejecting, reporting and analyzing their failures as well as successes, just as they still do with their cases of appendicitis, gallstone, hypertrophied prostate, etc.

Last year, in a short plea made before the Medical Section of this Society, I begged that there should be a closer cooperation between the medical attendant and the surgeon, early in the progress of these cases; that for the patient's benefit, if for nothing else, he should be allowed to have an opinion from the surgical point of view. I am happy to state that I believe this plea has borne fruit in spite of the fact that our malignant cases still come too late for anything more than temporary relief.

I do not feel that surgery, or at least my surgery, has more than begun to solve the problem in the treatment of stomach diseases, and a perusal of my cases will convince you that there is much that has discouraged me throughout; but I believe a closer analysis will not place the odium for all our failures at the surgical door. In reporting the unsatisfactory results I have attempted as impartially as possible to fix the blame — if the term is not too harsh — where it belongs, whether on my own shoulders, or those of the reluctant medical attendant, or on the attitude of the laity in general towards seeking surgical relief. In spite of a case now and then that does not prove as satisfactory as we should like, both Dr. Bottomley and I feel that we are steadily nearing the point where we can judge what cases are to be discouraged as useless surgical risks and what cases can be assured of temporary or permanent relief. The risk from operation is lessening with experience and with selection of cases earlier in the course of the disease, until now I firmly believe that we can offer at least a gastro-enterostomy with no more risk of life than in the case of an interval appendix. I will frankly acknowledge that in several instances I have limited operation to a gastro-enterostomy, through timidity, rather than undertake a more radical procedure. The feeling of this community has been so strongly opposed to surgery of the stomach that it has seemed of the utmost importance, first of all, to establish firmly in the mind of the medical confrere that his stomach cases will not die under operation. If we can advance a little farther and establish in the mind of the general practitioner that the risk to life in any of the accepted types of operation is small enough to be disregarded when placed in the balance with the risks and the suffering that go with the so-called conservative treatment, we shall feel that the work has not been in vain. Moreover, the pathology of the various gastric lesions, as Mayo and others have pointed out, must be learned in the living at operation and not on the cadaver. All the time that we have been, so to speak, feeling our way, we have observed and noted the various conditions found at operation, hoping that eventually we can associate clinical symptoms with the operative findings.

It is a serious and embarrassing commentary that scarcely a single case of carcinoma in our series has sought, or been driven to seek, surgical aid until it was too late to attempt radical cure. There is no valid excuse nowadays with the clear-cut, splendid work of men like the surgeons named above, for the medical specialist to turn over his malignant cases, when far advanced in disease, with the apology that the laboratory failed to demonstrate a malignant process, at the time when an exploratory operation, as harmless as any major operation can be, would have definitely and accurately established a diagnosis.

It has been pathetic, in some cases, to have patients withheld from operation by the supposed absence of cancer, because of the presence of hydrochloric acid, when a calm consideration of the clinical symptoms would and should have indicated some serious lesion.

* Read before The Massachusetts Medical Society, June 7, 1904.

In many other cases what can we say? A patient is treated for months or years for a mechanical obstruction, by lavage, medicines, diet, etc., never with more than partial, temporary relief, only to slowly and insidiously develop a malignant growth, to be turned over to the surgeon long after it is too late, robbed of his money, strength, time and courage. Then if operation is done as a last resort and the patient dies, surgery receives all the blame.

The bulk of patients seeking aid of the medical practitioner and of the stomach specialist are medical, and not surgical, from first to last. These are the dyspeptics from alcohol, dietary errors, worry, etc., and they can all be cured far better in any way than by surgery. When we consider the ulcers, acute and subacute, it is probable that a good proportion can be, and are, cured by proper medical care. When, however, we come to relapsing or chronic ulcers I believe that, in the long run, surgery will offer a better outlook with less suffering, time and expense than can be obtained by prolonged internal treatment, limited diet, etc. In the grave cases of hemorrhage, the results of men of larger experience, like Moynihan and others, indicate that in all probability surgery can do more, and with greater saftey, than the time-honored treatment so much used at present. Of perforations, there is no room for argument in the matter of treatment. The possibility of perforation of both gastric and duodenal ulcers should be much more before the general practitioner's mind when treating patients with acute abdominal pain.

I have carefully avoided discussing technic in reporting the cases. The best method applicable to each individual case is far from settled, and it cannot be settled satisfactorily for many years. The internist must be content to let differences in methods be settled by the surgeon, meanwhile resting assured that, although there is much remaining to satisfy him, the simplification and the results are as steadily improving as is possible, and the results as shown in relief of suffering are steadily growing more satisfactory. In malignant cases we have used the Murphy button for the most part, but in other cases, where speed is of less importance, the method with clamps and suture as published by Moynihan has given satisfaction. Gastroduodenostomy by Finney's method we have liked also, but as we grow more proficient in our technic, and what is of more importance, as soon as the general practitioner realizes that stomach surgery is not as serious or fatal as the textbooks describe, I believe that the radical operation will be much more in vogue where now we resort to a simple anastomosis. Indeed, I am convinced of this in spite of the occasional discouraging failures.

No attempt has been made to report the chemical analyses of our cases. In quite a number careful and elaborate examinations were made, while in others only simple tests were used. Until we can collect a large series of several hundreds of analyses made by the same methods and under practically the same guidance, I believe that the discussion of tests made, as in our patients, by many different examiners and under very varying conditions, is only futile. I have tried, first of all, to demonstrate the clinical history just as the general practitioner would obtain it, testing the size, motility and acidity of the stomach, which can be done without elaborate apparatus. By comparing these clinical symptoms and the clinical histories (brief though they may be, but notwithstanding, so often very poignant) with the condition found at operation, I believe we can form some judgment in future as to the actual condition of the viscera before operation.

The cases that have but little interest to us in this report consist of 4 operations for stricture of the esophagus, 3 of which were carcinoma, and 1 a gumma. Two patients were operated on for perforating wound of the stomach, with one recovery. Two cases were explored, one for a supposed foreign body and the other was a man of forty-six who had had a gastro-enterostomy done by Dr. S. J. Mixter, with a McGraw ligature, in August, 1902. Following this operation he was well for six weeks, when his pain and vomiting returned. Often he would go for a week without vomiting, then would throw up food that he had eaten twenty-four hours previously. On the supposition that the gastro-enterostomy opening had closed I reopened the abdomen and found an edematous condition of the omentum. On the stomach on the anterior surface the artificial opening was clear and easily admitted the finger. The stomach had been drawn down into a funnel shape and was apparently draining perfectly into the jejunum. There was no sign of constriction or of impaired drainage. The gall bladder was covered with adhesions and was not palpable. Exploration elsewhere was negative. As there seemed to be no indication for further interference the abdomen was closed.

Two cases were admitted with an undoubted clinical history of gastric ulcer, but both refused operation and they have not been heard from since.

Of the malignant cases, ten were explored and the condition was found too far advanced to allow radical operation or there was not enough indication of pyloric stenosis to warrant a gastro-enterostomy. These cases were closed at once and were discharged from the hospital as quickly as possible.

In detail they are as follows:

No. XI. Male, fifty-two. Referred by Dr. V. Y. Bowditch. Dyspepsia for a year, with occasional attacks of severe griping pains, for which morphia was given. No vomiting, but some relief from eructation. Test breakfast at the hands of a stomach specialist showed no evidence of carcinoma. He was sent abroad for his health, but derived no benefit from the trip, vomiting more or less while he was in Europe, and at that time he noticed retained food in the vomitus. He then regularly produced vomiting

to relieve his stomach of retained food. He recently had lost a good deal of weight and strength. He was much emaciated and cachetic. Slightly to the right of the median line, in the epigastrium, was a hard movable tumor of the size of a hen's egg. He was put at once on rectal feeding for a few days and his condition improved somewhat.

Operation showed a hard growth about two inches in diameter in the greater curvature, extending towards the pylorus, but apparently not originating there. There were nodules in the omentum and colon, both of which were closely adherent to the stomach. Posteriorly the mesocolon was rough and nodular and likewise the major portion of the posterior stomach wall was studded with small metastases. Anteriorly the lymphatics, radiating in all directions, were filled with the growth. No nodules were found in the liver. As the case was hopeless the abdomen was closed. The patient was in good condition at the close of the operation, but in the course of an hour his pulse rapidly failed and he died twelve hours later.

No. XII. Male, seventy. Entered the City Hospital in August, 1896.

Two months before that he began to complain of constipation, soon followed by vomiting once or twice each day, which had continued ever since, and marked loss of weight. He was cachetic, very thin, and below the costal border a small, hard, round mass could be felt.

Operation showed malignant adhesions of the omentum and stomach and a hard, round ulcerating tumor of the pylorus, with dilatation of the stomach and malignant retroperitoneal lymph nodes. As the patient was too sick to warrant any further interference the abdomen was closed, and he died two days later, vomiting continuously. No autopsy.

No. XIII. Male, fifty, entered the City Hospital in April, 1898. Ten and six years before he had had hemorrhages from the stomach. At one time he used alcohol to excess, but had been temperate for the last five years. Seven weeks before entrance he developed pain, which was relieved by taking soft food. There was soreness and a feeling of pressure over the sternum. For a year he had had soreness across the abdomen and had noticed a feeling of resistance in the epigastrium. Three weeks ago he observed a distinct lump. He was losing strength. A hard tumor the size of a base ball could be felt in the epigastrium.

Operation showed adhesions of omentum and intestines to the liver and deep structures. In the posterior wall of the stomach over the pylorus was a malignant growth closely adherent posteriorly. Numerous nodules in the liver, the size of a walnut. As the case was hopeless the abdomen was closed, and the patient died two weeks later of gradual failure.

Autopsy showed carcinoma of the posterior wall of the stomach, the nodules in the liver being due to cirrhosis, not to carcinoma.

No. XIV. Male, twenty-seven years old, entered the City Hospital in July, 1902.

He had had an irritable stomach since the preceding February, marked by diffuse epigastric pain after meals, increasing in severity recently. He had vomited only a few times. Twice he had vomited a small quantity of reddish-brown blood, which the patient thought was fresh. Blackish, constipated stools. For three or four months a tumor mass had been developing in the epigastrium. For several weeks recently, throbbing of the tumor had given the patient annoyance, as he lay on his right side or on his back. He had lost weight and strength and had grown very anemic. Four weeks ago, after a period of severe constipation, he had severe abdominal pain, which at the time was diagnosticated as rupture of the stomach with a local peritonitis. At entrance he had only 30% hemoglobin. In the epigastrium there was a flat, circular, sharply circumscribed tumor, movable, very slightly tender. Under rectal feeding he improved steadily for about four weeks, although at no time did it seem safe to make even an exploration on account of his intense anemia. The hemoglobin increased up to 45%, and his appetite improved so that he was able to take a fair amount of nourishment by mouth. As soon as it seemed safe to explore he was given ether, and a large nodular tumor adherent to the anterior wall was found too extensive for any attempt at radical cure. The wound was closed and the patient was able to return home to Philadelphia in the course of a week, where he died some weeks later. Examination of specimen removed showed it to be sarcoma.

No. XV. Male, forty-eight, entered the City Hospital in April, 1903.

For five weeks he had had constant pain in the epigastrium with constant nausea. He had lost weight and strength and twice had vomited a moderate amount of dark granular material. There was a tumor mass filling the epigastrium to within two inches of the umbilicus, and disappearing under the costal margin on either side. The surface was irregular and dull to percussion.

Operation showed two groups of malignant nodules in the right hepatic lobe, one in the median line and the other in the right flank; a third in the left lobe. In the posterior wall of the stomach was a large mass the size of a small fist, merging into a sausage-shaped tumor lying along the greater curvature. The pylorus was free and open and the stomach not dilated. The wound was closed and the patient was discharged, temporarily relieved, in eleven days.

His later history has not been obtained, but death must have followed quickly.

No. XVI. Female, twenty-nine years old, referred to me by Dr. M. W. White.

Two years before I saw her she began craving food, with immediate relief on eating. There was no definite dyspepsia at that time. By the end of five or six months she lost her appetite and the abdomen felt full at all times. No vomiting, but eructation. Six months later — that is, a year before I saw her — she began to lose weight and had lost about sixty pounds. One week before I saw her she vomited for several days, but without blood in the vomit. The vomiting usually came on two hours after eating and consisted of undigested food. No history of blood in the stools. She did not complain of pain, but a feeling of pressure; otherwise she felt perfectly well. No history of early ulcer could be obtained. There was a well-marked tumor in the epigastrium, moving with respiration.

At operation, in July, 1903, at the Carney Hospital, the anterior wall of the stomach was found to consist of a broad, flat mass of carcinoma, extending up close to the esophageal opening. There were metastases in the omentum. As there was not enough normal tissue in the anterior wall to make an artificial opening, the wound was closed and the patient was discharged in ten days, unrelieved.

No. XVII. Male, sixty-four, referred by Dr. M. P. Smithwick. He gave a history suggesting a relapsing ulcer for a period of many years. Recently he had had vomiting, with loss of strength, and blood in the stomach washings. Hydrochloric acid was present a month or so before I saw him, but on recent examination this had disappeared. For several months he could keep nothing on his stomach, vomiting imme-

diately after eating, liquids as well as solids. He complained of pain most of the time and had been too weak to work for several months. He was emaciated, with some tenderness in the epigastrium and an indistinct nodule.

At operation at the Carney Hospital, there was an excess of serum in the cavity. Over the parietes and through the omentum there were numerous miliary nodules of carcinoma. In the stomach was a tumor the size of an orange, in the anterior wall and greater curvature just below the esophagus, with infiltration extending up to the diaphragm, and along the greater curvature and anterior wall. Adhesions also extended over to the spleen. The wound was closed and the patient discharged, unrelieved, in eight days.

He lived for about two months and at autopsy carcinoma of the stomach was found.

No. XVIII. Male, sixty-three, referred by Dr. Stack. Entered the Carney Hospital in August, 1903. His mother had died of cancer of the stomach.

For several months he had complained of gas in the abdomen, which produced severe enough colic to keep him awake at night, and he had cut down his diet practically to thin gruel. Pain came on about one half hour after eating. He had had no nausea; no hematemesis. He, himself, noticed a tumor two weeks before I saw him. He was pale, waxy, emaciated, and a mass the size of a cocoanut could be felt in the umbilical region, freely movable, not nodular.

At operation there was free fluid in the cavity and a large mass in the anterior wall of the stomach up to within two or three inches of the esophagus and extending down to the pylorus, involving the omentum, in which the major portion of the growth existed. No metastases were found in the liver, but in the anterior parietal peritoneum adjacent to the main tumor. The wound was closed and ten days later the patient was discharged.

Twelve hours after returning home he had a severe attack of pain without vomiting, but with marked dyspnea, which lasted six hours, followed by death.

No. XIX. Male, sixty years of age. Referred by Dr. Smithwick. Mother had died of dyspepsia. Patient had had occasional attacks of indigestion. Eight years ago he began to have gastric pain, relieved by drinking water. This pain came on several hours after eating, the intervals growing shorter in course of time. This pain would persist until he ate more food, when it would be temporarily relieved. He had had no nausea nor vomiting, but was poorly nourished. There was considerable belching.

At operation, at the Carney Hospital, in September, 1903, a hard tumor was found in the anterior wall just below the esophagus, of the size of a fist, together with additional nodules nearer the diaphragm. The pylorus was free and open; no metastases could be felt in the liver. As the growth was too extensive for excision the wound was closed and the patient was discharged in the course of a week.

A month later he reported at the hospital that he had gained weight, and felt well, still eating every four or five hours for the relief of pain. Death must have followed before long.

No. XCVII. Female, forty-eight years of age, referred by Dr. Dewis and Dr. Pettee. Entered the Carney Hospital in June, 1904.

As long as she could remember she had had indigestion, but within the last year she had lost weight and strength, and the indigestion had grown worse. Distress came on soon after eating, followed by vomiting and relief. For three months she had had almost constant epigastric pain, and for two months she had vomited very steadily after eating. No blood in vomitus at any time. Up to two months ago there had been much gas in the stomach, but recently that had not given trouble. Constipation. Examination of stomach showed considerable sour residue. On attempting to test the capacity great pain was produced and not over a half pint of fluid could be introduced.

Operation showed an excess of serum in the abdominal cavity, a diffuse carcinoma of the pyloric half of the stomach, with metastases in the liver, omentum, mesentery of the small intestine, etc. As it was not possible to make an anastomosis satisfactorily the wound was closed in layers and the patient sent home in a few days, unrelieved.

In the following twenty-two cases of malignant disease some attempt was made by operation to relieve the symptoms, at least temporarily. In a few, the operation was clearly inadvisable, to judge from the outcome. But on several of these unfortunate victims operation was done, because the patients had come from a long distance, begging for some slight relief even if the operation should prove fatal. In scarcely any of them have I regretted doing this little to make their death an easier one, or to relieve even temporarily the horrible suffering from starvation and the persistent vomiting that these patients undergo.

It is almost impossible that the discomfort from a rapid anastomosis can begin to approach the suffering from starvation and vomiting. On the contrary the relief that so quickly follows, sometimes within twenty-four hours, is one of the most gratifying experiences that the surgeon, as well as the patient, can enjoy. Of course the earlier operations took longer and were much less satisfactory because of the ignorance of technic and the hesitation that comes in working in a new field where medical and lay prejudice is so strongly against surgical interference.

CASE XX. One of my earliest attempts at relief, was that of a woman thirty-three years old, who entered the City Hospital in October, 1900.

For one year she had been losing weight and strength, without other symptoms. Seven weeks before entrance she began to have occasional cramps, coming on after eating. Then she began to vomit one to two hours after meals, the vomitus consisting of stagnant food. She had much belching, and five weeks before entrance she vomited what looked like coffee grounds, since which time she had remained in bed. She was emaciated and sallow. Just above the umbilicus a hard, nodular, elongated tumor could be felt. Various examinations of the stomach contents were made, but they were of little help except that hydrochloric acid was found absent. At operation a freely movable pyloric tumor was found and pylorectomy was done with clamps and suture. An attempt was made to tie a Murphy button into the end of the duodenum, but it was unsatisfactory and the side wall of the duodenum was joined to the posterior wall of the stomach with a button, making a satisfactory anastomosis. A long chain of infiltrated tissue, supposed to be lymphatic nodes, along the greater curvature, was removed with the excised portion of the stomach. There is no mention in my notes of nodes in the lesser curva-

tures, although half of the lesser curvature was removed in the stomach portion.

She did well for a week, when the external wound was found open for about an inch, with the escape of yellowish fluid. Later this fluid became bilious, the patient gradually failed, and seventeen days after operation died.

The technic was undoubtedly at fault here, and to that can be ascribed the patient's death. I think, without question, that to-day the same operation could be repeated with almost absolute safety.

No. XXI. Male, sixty-one, entered the City Hospital in August, 1901.

Seven weeks before entrance, after swallowing by mistake some strong carbolic acid, he began to have stomach trouble, vomiting food about three hours after each meal. He then reduced his diet to barley and milk, retaining this until the evening, when he would vomit all he had eaten during the day. Much loss of weight, no pain, no eructation, and marked constipation. The patient was cachetic; the stomach capacity 960 cm., hydrochloric acid present, lactic acid absent. Nothing could be felt in the abdomen. For six weeks he had had only four stools. He was treated on the medical side for a month before his transfer to the surgical side, where a diagnosis of occlusion of the pylorus was made.

At operation there was edema of the peritoneum and considerable serum in the cavity, with thickening about the pylorus, which was nearly closed. A longitudinal incision over the pylorus showed a gummatous-like tissue of the walls surrounding the opening, just admitting a director and found with difficulty from within the stomach. The tissues were too thick and the opening too small to warrant a pyloroplasty, so an anterior button anastomosis was made. He was in such a condition of starvation that he was fed through the intestinal incision, at the time of operation, with beef-tea, coffee and brandy. Vomiting persisted after operation, for two days. He rapidly grew worse, the bowels became loose, he grew delirious, and one week after operation died. Shortly before death he was able to take food by mouth without vomiting, but he was so profoundly starved that he was unable to react.

I think there is no question but what this patient would have been saved had he been operated upon in the early stages of his starvation instead of being held for a month, for the purpose of making an accurate diagnosis and to see if medical treatment could not prove of benefit.

No. LXXXVI. Male, forty-seven years old, with sarcoma of the stomach.

Reported in full by Dr. H. D. Arnold in the Boston City Hospital Reports, Series XI.

This patient entered the hospital in March, 1898, on account of pain in the epigastrium and increasing weakness. Eight weeks before entrance he had given up work on account of the pain, which was steadily increasing. He had lost weight. There was some eructation, gas and nausea, but no vomiting. The bowels were constipated. A large tumor was felt in the left epigastric and hypochondriac regions. Examination of the stomach contents was contemplated, but the patient grew rapidly weaker and it had to be given up.

At operation, in the left hypochondrium a large nodular tumor was found, the descending colon being collapsed below the tumor, but above it the transverse colon was much distended. It was thought at the operation, as well as before, that a malignant tumor involved the spleen primarily or secondarily and that the involvement of the bowel was secondary to this. A jejunostomy was made owing to the serious condition of the patient. He improved for a few days, but died a week after operation.

At autopsy the upper colon was found enormously distended. In the stomach, the lesser curvature was found normal except for hemorrhages beneath the mucous membrane, but the remainder of the stomach showed nodular, firm masses beneath the mucous membrane, ½ to 2 cm. in diameter. On the greater curvature near the pylorus was a large excavation with a necrotic mass extending through to the splenic flexure of the colon. The pancreas was evidently involved as its structures could not be made out. "The growth is evidently of mesenchymal origin and should be classed as a mixed cell sarcoma, perhaps better as an endothelioma." (Pathological Report.)

No. XXII. Female, forty-six, entered the City Hospital in August, 1901. Much emaciated, cachetic, starved and slightly delirious. Two weeks before entrance she had fallen into a trench, striking the region of the stomach, and vomiting soon afterwards. For two years she had vomited directly after meals, no matter what food she ate, and she complained of distressed, gnawing sensations, relieved by taking food. The vomitus never was dark colored nor contained blood. On several occasions recently she had vomited large amounts. There was a large mass in the epigastric region extending down to the umbilicus and to the right, somewhat tender and difficult to palpate on account of rigidity.

At operation the pylorus and pyloric third of the stomach were found infiltrated with a hard malignant mass ulcerated at the pylorus. Hard masses were felt in the retroperitoneal space and in the gastrocolic omentum. An anterior anastomosis, with a Murphy button, was made, the patient being in good condition at the close of operation.

The following day she was very weak, the pulse steadily rising, and two days after operation she died.

Partial autopsy showed a tight joint without evidence of a peritonitis.

No. XXIII. Male, fifty-three years old. Entered the medical service of the City Hospital in November, 1901.

A year before, he had distress and epigastric pain about an hour after eating, lasting for several hours, disappearing when the stomach was empty, relieved by hot drinks and hot applications. There was eructation but no vomiting. He had lost weight steadily, but had kept at work up to July, when he grew very weak. Two months before entrance he began to vomit once or twice a week very large amounts, often with dark coffee grounds, and for a week before he was operated on he vomited several times a day. Marked constipation. He was emaciated, pale, and in the epigastrium was a large mass, tender on pressure.

At operation a large nodular mass of the size of two fists was found in the pyloric half of the stomach and deep glands could be felt all through the upper abdomen. The cardiac half of the stomach was not involved, and an anterior button anastomosis was made, the patient standing the operation well.

After the operation he improved and had no vomiting for two weeks. Then the vomiting returned, he gradually lost strength, and died five weeks after operation.

The abdomen was opened through the incision and the button was found in the stomach.

No. XXIV. Male, thirty years old.

Two weeks and a half before entrance to the medical side of the City Hospital, in October, 1902, the patient had had a sudden onset of pain in the epigastric region which had continued up to his entrance. He had vomited persistently without regard to food and was in a condition of acute starvation. He had had similar attacks one, ten and fifteen years ago, respectively, lasting about a week.

He was transferred to the surgical side, and at operation a malignant tumor at the pylorus, firmly adherent to the gall bladder, the ducts and deep tissues, was found. The pylorus could not be freed sufficiently for its removal. The stomach was dilated and the lumen of the pylorus practically closed. An anterior button anastomosis was done and the abdomen closed rapidly. The patient stood the operation fairly well, but failed gradually and died three days afterwards of exhaustion.

No. XXV. Male, thirty-three years old, entered the City Hospital in December, 1901.

Nine months previously he had attacks of colic without nausea or vomiting. Two weeks later there was dull pain in the epigastrium constantly, most marked two or three hours after eating, with nausea, eructations, but no vomiting till the latter part of November, when he vomited a quart of brownish blood. Since then he had only vomited once. He had lost weight and strength, and had been able to do no work for two months on account of weakness. Just below and to the left of the umbilicus was a tender mass the size of a small orange.

At operation a hard malignant tumor in the pyloric third of the stomach was found starting from or close to the pylorus. The omentum was adherent by direct malignant infiltration. There were enlarged glands in the gastrohepatic omentum, behind the peritoneum, while through the omentum itself were a few small nodules. An anterior button anastomosis was made and the wound closed. He vomited a few times after operation, but was relieved by lavage. A month afterward he was discharged. About a year later the patient reported that he was hard at work and in good condition.

No. XXVI. Female, thirty years old, entered the City Hospital January, 1903.

For about three months she had had pain in the epigastrium, vomiting almost everything except milk and lime water. Pain was worse at night, so that she was not able to sleep. The stomach contents showed free hydrochloric acid and the absence of lactic acid. She improved somewhat under rectal alimentation, but when given food by mouth vomited excessive amounts. There was a movable epigastric tumor. No cachexia.

At operation, an excessive quantity of straw-colored serum was found in the abdominal cavity; a large malignant tumor of the plyorus was found infiltrating along the lesser curvature to the esophagus, along the greater curvature to the omentum, and into the great and small intestine in the neighborhood. The stomach wall was thickened and edematous. An anterior button anastomosis was made and the wound closed. She steadily improved after operation and was soon eating solids without nausea or vomiting. Discharged at the end of two weeks to the Convalescent Home.

A month later, however, she returned to the hospital, cachetic, greatly emaciated — but without having vomited -- with edema and ascites; she rapidly failed, and died in the middle of April.

No. XXVII. Male, fifty-four, admitted to the City Hospital, April, 1903.

A history of stomach trouble for six months, with a loss of fifty pounds in weight, beginning with occasional vomiting, increasing in frequency to two or three times daily, always after eating, coming on as a rule within fifteen minutes. No hematemesis, no pain. He was emaciated, and in the left epigastrium there was a distinct prominence. Examination of the stomach showed absence of hydrochloric acid and presence of lactic acid and a dilated stomach. A week after his entrance he was transferred to the surgical side for operation, when the stomach was found with thick, hypertrophied walls, not dilated, rigid and unyielding. The pylorus was thickened but not indurated as from malignant infiltration. It was impervious so far as could be told by examination through the stomach walls. No nodules were felt. An anterior button gastro-enterostomy was made and the wound closed. After operation vomiting ceased, but the patient steadily grew weaker and died without other symptoms, four days later.

No autopsy was obtained and the diagnosis cannot be absolutely established, but in all probability it was diffuse carcinoma of the stomach.

No. XXVIII. Male, forty-nine years old. Referred to me by Dr. J. A. Gordon.

For five years he had been under treatment by a prominent physician for dyspepsia, fermentation and vomiting. He had improved somewhat up to about nine months before I saw him. Then there was recurrence of his trouble with enormous dilatation and fermentation. There was no history of hemorrhage, but the vomitus contained food eaten one or more days previously. There was marked loss of weight, and examination showed a distended stomach, with the lower border half way between the umbilicus and the pubes.

At operation, at the Boothby Hospital, the pyloric third of the stomach was found to be a mass of malignant infiltration extending into the omentum. An anterior button anastomosis was made, and the wound closed. He was soon up, eating heartily of soft solids, and liquids, and returned home in good condition.

Later he went to business regularly, but gradually the symptoms returned, he lost weight, and died several months after operation.

No. XXIX. Female, sixty-two years old. Referred to me by Dr. F. J. Peirce.

Twelve years before, after a fall, she was confined to her bed for five or six weeks and had been an invalid ever since. She complained at the time of injury of much abdominal pain and distention, but had no vomiting. Six months before I saw her, her first attack of vomiting came on and this was followed by nausea, lasting for some months. Then vomiting returned and steadily increased in frequency. No blood nor coffee grounds had been seen. The vomitus consisted of retained food and at times was excessive in quantity. She had lost thirty pounds in the last eight months. No history of stomach trouble in youth could be obtained. Examination showed an emaciated woman with an irregular tumor in the epigastrium. Irrigation of the stomach showed decomposed food.

At operation at the Boothby Hospital, in February, 1903, a hard malignant tumor in the right portion of the stomach along the greater curvature and close to the pylorus, but not involving it, was found. It invaded the mesocolon and the omentum. An anterior button gastro-enterostomy was done. A very much distended gall bladder was found, with two large stones, wedged in the cystic duct, which were removed. The patient slowly gained and was able to take sufficient food to satisfy her hunger, and returned home in good condition, but some weeks afterwards gradually failed and died.

No. XXX. Male, forty-four years old. Entered the Carney Hospital June, 1903, for sarcoma of the testis, which was removed. In the upper right abdomen was a large nodular tumor, which prevented the patient from lying down with comfort and obstructed the pyloric outlet. He had more or less regurgitation, without nausea. Soon after eating, he complained of more or less burning sensation in the stomach. There was another metastatic growth in the right neck. Operation was advised for temporary relief.

At operation a large nodular adherent mass in and about the pyloric third of the stomach, with retroperitoneal and mesenteric nodes, was found. Universally throughout the omentum were small translucent nodules one eighth of an inch in diameter. An anterior button gastro-enterostomy was done and the wound closed. The patient recovered well from the operation and was sent home in a few days perfectly comfortable.

The later history is unknown, but he undoubtedly succumbed to his disease within a short time.

No. XXXI. Male, twenty-seven years old. Was transferred from the medical service of the Carney Hospital, June, 1903.

The patient was in constant pain, with vomiting and marked emaciation. An operation was advised as a palliative measure only.

In the esophageal third of the stomach was found a hard nodular growth extending up to the diaphragm but without evidence of metastases. It apparently blocked the entrance to the stomach so the jejunum was opened, a catheter tied in, and liquid food given at once. He was fed through the tube for several days, at the end of which time the opening into the stomach apparently enlarged, and he was able to take semi-solid foods. He continued taking food by mouth, but rapidly grew weaker and was transferred to the Ward for Incurables, where he died shortly after.

No. XXXII. Female, thirty-five years old. Referred by Dr. Foley of Worcester. Entered the Carney Hospital in September, 1903.

In February of the same year she began to have gastric symptoms, relieved by vomiting, but the symptoms steadily grew worse, the vomiting became sour, she lost weight, and finally was reduced to a diet of liquid peptonoids, on which she had lived for six weeks before I saw her. She was much emaciated, could not sleep at night and had pain in her left side. She had never vomited fresh blood, but examination showed some undigested blood. The pain usually came on from a few minutes to an hour after eating and was relieved at once by vomiting if the vomitus was in considerable amount. She had vomited retained food. A short time before I saw her she had been in a hospital and had derived considerable relief, going for a week or more without vomiting. After this treatment she had been on light mouth feeding for a while, but, as noted above, for the last six weeks had confined her diet to liquid peptonoids. Recently there was temporary edema of the lower extremities. The patient was emaciated, the abdomen showed visible peristalsis, and in the epigastrium above the umbilicus was a tender movable tumor, about an inch in diameter. The stomach was moderately dilated.

At operation a typical malignant growth involving the lesser curvature to the pylorus was found, with recent malignant adhesions of the neighboring anterior tissues. An anterior gastro-enterostomy, with a Murphy button, was made and the wound closed. The patient gained steadily after operation and was discharged in three weeks eating ordinary food.

Five months after operation a letter from Dr. Foley reported that the patient had gained forty pounds, had been able to go about, and was in very comfortable condition, but that recently she had begun to show signs of invasion of the opening with return of vomiting.

No. XXXIII. Male, forty-four, referred by Dr. Webber of Calais, Me. Entered the Carney Hospital in September, 1903.

Since June he had had stomach trouble, beginning with loss of appetite, pyrosis and belching. In July he vomited for the first time, afterwards vomiting from one to three times daily. At times the vomitus was dark colored, but never with fresh blood. Food had distressed him for several months, especially when lying down; pain was absent when the stomach was empty. The lower border of the stomach was at the level of the umbilicus. No tumor could be felt on palpation.

At operation, in the lesser curvature and close to the pylorus, probably involving it secondarily, was a hard nodule the size of an English walnut. In the omentum and mesentery were numerous hard lymph nodes, one of which was removed for diagnosis. A posterior gastro-enterostomy, with clamps and suture, was made and the wound closed.

The patient was soon eating the regular food and returned home at the end of two weeks.

In May of this year the patient reported that he had had no vomiting since the operation, had eaten three square meals daily, and had not lost a day's work; but he was beginning to lose strength and was undoubtedly gradually failing from general malignant infection.

No. XXXIV. Male, thirty-eight years old, entered the Carney Hospital in November, 1903, and was transferred from the medical side for operation. He had complained of stomach trouble for eight weeks, vomiting occasionally one half hour after meals, but for the last four weeks he had vomited everything. There was much gas, epigastric pain and constipation. Examination of the fasting stomach showed eight and one-half ounces residue, free hydrochloric acid absent, lactic acid present.

At operation, by Dr. Bottomley, a hard mass half the size of the fist was found involving the pylorus. The retroperitoneal glands were enlarged; the stomach not much distended. A posterior anastomosis, with clamps and suture was made, some difficulty being found in obtaining sufficient healthy tissue to work with.

The patient was in poor condition and gradually died about two weeks after operation.

No. XXXV. Female, forty-nine years old, referred by Dr. Glennon of Stoughton, entered the Carney Hospital in January, 1904.

For a year she had had indigestion and pain, referred to the stomach, with distress following food. During the summer she was worse and had occasional vomiting. She was very much troubled with gas and constipation. Lavage showed undigested food, hydrochloric acid present and lactic acid absent.

At operation, by Dr. Bottomley, a hard, malignant tumor of the pylorus, with involvement of the glands posteriorly, was found. A posterior gastro-enterostomy, with clamps and suture, was made and the wound closed.

The patient vomited only two or three days after operation, some coffee-ground substance being in the vomitus. She then began to fail gradually, without nausea or vomiting. Then suppression of the urine appeared several days afterwards, followed by death.

No. XXXVI. Male, forty years old, referred by Dr. Hunting of Quincy, entered the Carney Hospital in March, 1904.

A year ago he began to lose weight and complained of dyspepsia at the same time. At first there were eructations of mucus, but during the summer he vomited sour food, usually four or five hours after eating. No blood had been seen at any time. The vomiting came on about every day and constipation was marked. For the last two months he had practically vomited all that he had eaten, but no history of excessive quantity could be obtained. He was constantly hungry, and eating satisfied the hunger in spite of the vomiting. He had lost weight and was markedly emaciated. He had been in one of our large hospitals under medical treatment, recently, growing rapidly weaker. In the epigastrium and left hypochondrium was a nodular superficial tumor, moving with respiration. He was able to digest a little malted milk since he had been on rectal feeding. An operation was advised in the hope that it would at least enable him to take food by mouth until he died of general malignancy.

At operation, a hard nodular mass involving the pylorus and pyloric third of the stomach in both walls was found, infiltrating the liver. It was difficult to obtain enough healthy tissue to make an anastomosis, but an anterior button anastomosis was made and the wound closed. The patient recovered well from the operation, was able to take food comfortably, and was encouraged with the result; but he gradually grew weaker and died nine days after the operation, without having vomited.

No. XXXVII. Male, sixty-five, referred by Dr. Deacon of Milltown, N. B. Father died of stomach trouble at sixty-seven years of age.

For a year the patient had complained of slight soreness in the right epigastrium, but without dyspeptic symptoms. Three months ago there was much gas and he was obliged to sit up in bed at night to relieve the distention. There was slight indigestion at this time, with distress after eating, but no vomiting. His appetite was good. Six weeks ago there was griping pain in the epigastrium and he was unable to sleep. He still had no vomiting, but began to limit his diet to liquids and soft solids. Four weeks ago he vomited after eating, and there was much pain and annoyance from persistent belching, which came on in spells. For two weeks he had been nauseated all the time, vomiting constantly. No blood had been seen until two days before entrance and then only in a few streaks. He had lost thirty pounds in six weeks and had been confined to bed for the last week. He entered the Carney Hospital in April, 1904, emaciated, with a hard nodular mass the size of a fist, in the epigastrium, not very tender. The patient was too sick to justify operation, but he had come such a long distance with a forlorn hope of even temporary relief that I could not refuse at least exploring the abdomen.

At operation the pyloric third of the stomach was filled with nodular masses aggregating a tumor the size of two fists. The growth invaded the adjacent liver and in the latter were metastatic masses the size of walnuts. Along the greater curvatures were large malignant nodes and in the retroperitoneal space were similar smaller nodes. The left portion of the stomach was pale and brittle. There was free fluid in the general cavity, and only by strong tension on the stomach could an area free of growth be brought into the field. To this an anterior button anastomosis was made. Exploration of the inside of the stomach showed nodular growths blocking up the pyloric end. There was no immediate shock from operation. The following day the patient had made a good recovery, but was still weak and there was considerable fresh blood in his vomitus. Two days later there was still some blood, dark in color but much less in quantity. The patient grew weaker, however, rejected his enemata, and three days after operation he rapidly failed and died.

No. XC. Male, fifty-six years old. Referred by Dr. Benner of South Framingham.

Stomach trouble began about fifteen years ago, with distress after eating, but vomiting did not appear until three months ago. He had never vomited blood, but had lost much weight. Examination of the stomach showed a capacity of over two quarts, with retained food, the lower border being below the umbilicus. For years the patient had been under the care of various physicians for dyspepsia, with only temporary relief. A day or two before I saw him he had lost rapidly and was stupid and partially delirious at examination. Operation was requested at any risk and was done at once at the South Framingham Hospital. The stomach was found dilated and distended with gas. In the pyloric region was a hard, scirrhous growth, apparently a carcinoma of the pyloric ring itself. In the neighborhood were numerous small, white metastases extending into the lesser omentum, the greater omentum, the mesocolon and the mesentery, with scattered nodules in the jejunum. The liver was normal. A posterior gastro-enterostomy, with clamps and sutures, was done as rapidly as possible, and the abdomen closed in layers. In both the stomach and jejunum was found very foul, decomposed blood, some of which the patient vomited, although the stomach had been carefully washed out previously. There was severe shock, and the patient died in twelve hours.

No. XCI. Male, sixty-two years old. Referred by Dr. George H. McIntire of Cambridge.

For several years he had had stomach trouble, beginning with dyspepsia, coming on after meals. He had been a commercial traveler for a number of years, with irregular meals, and recalled a number of times when he had attacks of temporary distress, without vomiting. Then the dyspepsia became more persistent, and for the past year it had steadily increased, with vomiting at times. For two years he had not been able to sleep through the night without rising once or twice and taking a dose of soda bicarbonate to relieve the gaseous distention of the stomach. Vomiting began about a year ago, and consisted of poorly digested food, and at times of food that had been retained for over twenty-four hours. He had never noticed blood nor coffee grounds, but had vomited excessive amounts, and in the last few months had lost weight. The distress after meals would come on in about one hour and he was made worse by lying down. He had limited his diet more and more, and when seen was eating very simple food. He had been treated by various physicians — stomach specialists among them; forced feeding had been tried, but attacks of severe vomiting was the main result.

At operation, at the Carney Hospital, a nodular, irregular tumor was found at the pylorus, with extension along the posterior wall of the duodenum for about three inches, making it impracticable to clamp the bowel through healthy tissue in order to perform a pylorectomy. No enlarged glands were found in either of the omenta. A posterior gastro-enterostomy, with clamps and sutures, was done, with a short jejunal loop. In the stomach was some digested blood. Wound closed in layers. Patient in good condition at close. Convalescence was satisfactory and several weeks later he was in excellent condition.

(To be continued.)

MALPOSITIONS OF THE UTERUS; THEIR CAUSES AND TREATMENT.*

BY D. J. BROWN, M.D., SPRINGFIELD, MASS.

When we speak of a normal uterus, in the general acceptance of the term we mean that the fundus should be on a level with the plane of the superior strait, and the os externum should touch a line drawn from the lower surface of the symphysis pubis to the lower margin of the fourth sacral vertebra. This would bring the axis of the uterus very nearly at right angles to the vagina. However, some works on anatomy represent the uterus as having a straight canal, viz.: its axis corresponding to the long axis of the body. Dependent upon respiration, intra-abdominal pressure, body movements, and the bladder or rectum, distended or empty, the uterus changes its position very frequently. This is called the normal range of movements and is controlled by the uterine ligaments, the functions of which are as follows: The round ligaments resist backward displacement of the body; the utero-sacral and vesico-uterine resist the downward pressure or prolapse. The broad ligaments, besides preventing excessive lateral motion, enter largely into the support of the uterus — they are the weight carriers and have a fixed capacity. When the pelvic fascia is anywhere injured, every other portion of the pelvic contents feels the effect of the relaxation. If the uterus is sub-involuted and heavy with blood, the broad ligaments feel the increased weight and they are no longer able to resist the force of gravity; therefore, the uterus remains in its normal position by the concerted action of its several ligaments and the pelvic fascia, which are mutually interdependent for their integrity of action. That the perineum is responsible for the support of the uterus and vagina, I believe has but very few adherents at the present time.

In citing the causes of retro-deviation I shall make use of Krusen's classification.

Class A. Virginal Retro-deviation.

(1) Congenital retroflexion was first recognized by Saxtorph in 1775, next by T. L. Lee in 1849, is usually due to the incomplete development of the anterior and posterior uterine walls.

(2) Schultze attributes puerile retroflexion to congenital shortness of the anterior wall, whence it follows that distention of the bladder, which normally would slightly displace the uterus, completely retroverts it.

(3) Senile atrophy of the genitals, which is associated with shortness of the vagina while the bladder capacity remains unchanged.

(4) Every time the bladder becomes filled, the uterus, as already stated, is placed physiologically in a temporary position of retroversion; hence prolonged over-distention predisposes to this form of displacement.

(5) Habitual constipation resulting in severe straining efforts and increased abdominal pressure during difficult evacuation of the rectum, is a frequent factor, both in virgins and parous women.

(6) Masturbation by relaxing the uterus and the loss of nutritive fluids, is, according to Fritsch, responsible for many cases of virginal retrodisplacement. Hildebrandt found seven such cases in twelve girls addicted to the vice.

(7) Constitutional diseases, such as chlorosis and anemia, tend to relax the uterine supports, cause a disappearance of the adipose tissue, produce constipation and even make the uterine muscle itself relaxed and flexible.

Class B. Parous Women.

(1) Puerperal metritis, or sub-involution: This may be confined to the placental site or affect all parts of the uterine walls. If the placental site be on the anterior wall and the area be inflamed and thickened, this will produce a marked tendency to retroflexion. Chronic or puerperal metritis, by increasing the size and weight of the organ, with corresponding relaxation of the broad and round ligaments, will favor malposition.

(2) Laceration or over-stretching of the pelvic fascia, permitting the development of a rectocele and cystocele, is followed by downward or backward displacement.

(3) Salpingitis, by producing adhesions between the adnexa and the pelvic walls.

(4) Pregnancy may also be a factor, or may be complicated by it.

(5) Pressure from corsets, heavy skirts suspended from the waist, tight clothing, and prolonged pressure from a tight obstetric binder.

(6) Traumatism, blows, falls, or violent muscular effort.

(7) Neoplasms, either intra- or extra-uterine, may by their pressure displace the uterus.

(8) Among the more infrequent and problematical causes may be mentioned impotent husbands, as suggested by Hildebrandt, although Winckel states it is probably a simple coincidence.

(9) A wandering spleen was the direct cause in one instance reported.

Chronic cystitis, which shortens the vesico-vaginal septum by contraction, may produce a retrodisplacement. This form is incurable. (E. C. Dudley.)

Anteflexion is an accompaniment of non-development of the uterus which manifests itself by severe obstructive dysmenorrhea in girls at the beginning of menstruation and is a cause later in life of sterility. Among other causes may be mentioned, over-indulgence in dancing, gymnasium work, wheel riding. Sewing machine running, or severe work of any kind about the age of puberty may act as a derivative to the important menstrual organs, and one or more of them may be left undeveloped. Schultze has described a condition of immobile retroflexion resulting from posterior parametritis. W. L. Burrage has given the subject considerable thought and study and has published two interesting papers. He concludes that the chief cause of the condition is a shortening of the utero-sacral ligaments, which

* Read before The Massachusetts Medical Society, June 7, 1904.

shortening renders it impossible to permanently remove the flexure. Immobile retroposition with anteflexion is seen following labor and abortion from posterior adhesions, from tubo-ovaritis and hematocele. Generally one or both ovaries are found prolapsed or enlarged. Endometritis is almost invariably present. The condition is attended by dysmenorrhea, scanty menstruation or profuse flowing, pelvic pains, frequent abortions or sterility in the married, chronic irritation, bladder irritability, and leucorrhea. Where there is laxity of the uterine supports, the round, broad and utero-sacral ligaments associated with softness, fatty degeneration and want of tone of the uterine tissue, we have a pathological condition first mentioned by Pozzi in 1896 and afterwards described by Edebohls, known as excessive mobility of the uterus. The laxity of the ligamentous support is the essential condition. Add to this softness of the uterine tissue, and you explain the cause of flexions. If such a patient be examined by a number of men, the uterus will be found in different positions at each examination. I well remember such an occurrence. Each examiner made out a different position, consequently each thought the other had erred. According to Edebohls a diagnosis of excessive mobility of the uterus is made in the following manner: "Say we find the uterus, on bimanual examination, in anteversion or anteflexion, — push the cervix toward the symphysis by the intra-vaginal finger carried into the posterior fornix of the vagina, at the same time crowding the body of the uterus backward into retroversion by the fingers of the other hand upon the abdomen. An excessively movable uterus is thus readily retroverted and, moreover, remains in retroversion after withdrawal of the fingers from the vagina and abdomen, or returns but very slowly and sluggishly into a position approximating the normal." In this it differs from the uterus with normal mobility, which either would be replaced into retroversion of the second degree, or if forced into the latter position, immediately springs back into normal anteversion when released from the pressure of the fingers.

Symptoms. — Besides the usual symptoms, we have disturbance of the lower part of the intestinal tract, namely, tympanites and readily provoked irritation of the colon and rectum, as manifested by alternate constipation and looseness of the bowels, occasionally membranous enteritis, neuralgiæ and dysæphesiæ of a fugitive or wandering character, generally not severe, affecting the lower end of the trunk. This condition may be present in Glenard's disease. The symptoms of this condition are explained by irritation of the hypogastric plexus of the sympathetic.

A study of the treatment of malpositions of the uterus is unsatisfactory. A few years ago when corrections of uterine displacements became the surgical craze, one operative method after another was brought forth until at the present time the number is legion. Some of them are as unsurgical as others are surgical. How shall we best treat these conditions? The treatment of uterine displacements must have two distinct purposes in view: first, the bringing forward of the uterus to its normal condition; second, its retention therein. The vexed question is how to retain it there. Taking into consideration the wide range of mobility exercised by the normal uterus, a careful non-surgical and medical treatment should be first thoughtfully considered, being guided by the general condition of the patient, the symptoms complained of, duration of the displacement, and the complications, if any. What changes have the surrounding structures undergone?

The non-surgical treatment of uncomplicated retroversion is as follows: Carefully replace the uterus by bimanual manipulation from vagina and abdomen. If the vaginal manipulation fails, transfer the fingers to the rectum. If you are still unable to reduce it, try the knee-chest position. If all these measures fail, an anesthetic should be administered. This completely relaxes the patient and there will be no trouble in the reduction of the organ. If the displacement has been of short duration a well fitting pessary may be used immediately after reposition; on the other hand, if the displacement has been of long duration, the daily use of sterile tampons saturated with either ichthyol or glycerine and packed firmly against the cervix would be advisable, until all tenderness had disappeared. A Hodge-Smith pessary of proper shape and well fitted may then be used. This pessary will temporarily support the uterus in its normal position, besides relieving the abnormal strain. It gives the over-stretched sacro-uterine and round ligaments, which contain muscular fibers, as well as the vaginal walls, a chance to regain their normal tone. Also the lower bowel, which becomes atonic from constant pressure. As we learn to differentiate our cases more carefully, the prejudice which exists against the use of the pessary will promptly subside.

Besides this treatment, the patient should be given general tonics, especially those which have a tendency to tone muscles. Hot vaginal douches containing alum, at a temperature of 115°, twice daily, patient lying in the recumbent position. The patient should also be advised to assume the knee-chest position three or four times daily, two minutes each time, and with finger retract the fourchette, thus allowing air to enter the vagina, which distends the vaginal vault and counteracts intra-abdominal pressure. Patient should also be urged to lie upon the abdomen while sleeping. This treatment should be carried out during a period of at least two or three months. In a certain percentage of cases your efforts will be rewarded by good results. This may not meet the opinion of some whose teaching is always operative, but results often give us decided opinions of our own.

When, however, the retractile power of the utero-sacral ligaments is completely lost, the following simple operation, devised by A. H.

Goelet, is to the writer a step in the right direction. In 1899 Dudley, in a paper before the Chicago Gynecological Society, said, "We are now prepared to announce the great general principle of mechanical support as follows: If the cervix be normally placed within an inch of the hollow of the sacrum, the body of the uterus will, in the absence of complications, usually take care of itself." The operation about to be described aims at overcoming the displacement by holding the cervix permanently backward in the hollow of the sacrum and doing away with the necessity for a pessary, making use of the posterior vaginal wall for the attachment of the cervix, which, under normal conditions, is firmly connected with the anterior wall of the rectum.

Technic. — Patient is placed on the back in the exaggerated lithotomy position, vagina and vulva are cleansed in the usual manner by scrubbing, then the surface of the vagina and cervix are dried and painted with tincture of iodine to stain it and render it aseptic, or a solution of methylene blue might be used for this purpose. An area about one-half inch square upon the posterior surface of the cervix is denuded of its mucous membrane and a similar surface upon the posterior vaginal wall, well up in the sulcus, behind the cervix, is likewise denuded. These denuded surfaces are then approximated by deep sutures, three or four of which will suffice. Material, catgut or silkworm gut. A tampon of gauze is placed against the cervix to take the strain off the sutures and keep the surface of the vagina dry. Dressings are removed on the second day and may be renewed or not, as the judgment of the surgeon may dictate. Patient is kept in bed one week and encouraged to rest on either side rather than upon the back. If silkworm gut is used, it may be removed in two or three weeks.

The Alexander is a popular operation in uncomplicated cases of retro-deviation. Its advocates claim that the round ligaments will hold the uterus long enough in position to allow the utero-sacral ligaments to regain their normal tone. Many objections are urged against it, with all of which you are familiar. In two instances where the writer has performed the Alexander, a diseased appendix was also removed through the right incision, which was small, and carried through to the abdominal cavity. Both made excellent recoveries and no hernia followed.

In anteflexion due to muscular non-development, Martin advocates the use of electricity and has had exceedingly good results. He also recommends large and stimulating hot douches night and morning, supplementing these douches by an antiseptic douche immediately before treatment. The length of time required to carry any case to a successful termination is from three to six months. This might be urged as a serious objection. He also advocates proper exercise, general tonics, and laxatives if necessary.

In choosing operative procedures in cases of anteflexion, we have Dudley's operation, which consists in a division of the posterior wall, past the utero-vaginal attachment nearly to the utero-peritoneal fold in the pouch of Douglas; or, a modification of the same now in vogue at the Free Hospital for Women, a description of which appeared in its bulletin, Vol. I, No. 3, January, 1904. The success obtained has been remarkable and is worthy your consideration. Simply to dilate and curette, in this form of displacement, as is generally done, and expect good results, is a practically useless procedure. In extreme cases the anterior lip may also need attention.

In immobile retroposition with anteflexion, Burrage advocates, besides curetting, a division of the utero-sacral ligaments through an abdominal wound, and suspension of the uterus.

Where we have retro-deviation plus adhesions, it may be corrected in the following manner: Make a transverse incision through the posterior fornix, break up the adhesions, carry the uterus forward, then pack gauze into Douglas's pouch and also beneath the cervix, pressing it well upward and backward. The adhesions thus formed will lead to a correction of the displacement.

The treatment of excessive mobility of the uterus is essentially the same as that for movable retroversion of the uterus. A pessary will effect a cure in a percentage of these cases. Edebohls advocates Alexander. The writer would suggest cervico-vaginal fixation to those who object to wearing a pessary.

In retrodisplacement it sometimes happens that one or both ovaries may be prolapsed. This condition very frequently is the cause of more disturbance than the malposition of the uterus itself. When the prolapse in question is due to a lax and elongated ovarian ligament, to simply correct the malposition will not relieve the patient. The ovaries must also receive your attention. Two methods of treatment are advocated: first, by taking up the slack or making a fold in the ligament and stitching it with either silk or cat gut; second, as advocated by Dudley, stitching the ovary to the posterior surface of the broad ligament. In the absence of severe complications, this may be done through the vaginal route, when it is also possible to shorten the round ligaments, or simply correct the ovarian prolapse and do the posterior cervico-vaginal fixation. Of course, where the complications are extensive, viz., deep infection involving intestines, appendix, etc., the suprapubic route would offer better facilities.

The writer's work through the vaginal route, which includes a number of cases of resection of the ovaries, tubes, shortening of round ligaments and hysterectomies, has been very gratifying. It was really a stepping stone to thorough study of plastic work.

Presumably it may be said that the nearest approach to an ideal operation in uncomplicated retrodisplacements, is the one which takes up the slacks of the utero-sacral and round ligaments.

We now come to the consideration of complete prolapse. We have the following factors to consider: Backward displacement, including relaxation of the utero-sacral muscles; a sub-

involuted uterus, probably a ductile cervix, and a relaxed vaginal outlet, or a complete tear. We therefore have certain fundamental facts that must be considered: first, the whole vaginal walls are inverted. There can be no uterine procedenture without a corresponding vaginal inversion, unless it occur as a part of Glenard's disease, and then the vagina may be inverted by the sagging downward of a long ductile cervix; third, the anatomical relations of fascial structures; fourth, the intact levatores ani is the most important factor in preventing this form of displacement. The indications in this form of displacement are clearly as follows: First, to cause involution of the uterus, thus rendering it lighter and capable of support by the pelvic fascia in the broad ligaments and elsewhere. To renew the tension of the pelvic fascia throughout the pelvis, that proper support may be given to the levatores and the connective tissue and its vessels and the rectum and bladder. When this is thoroughly done, we will be able to discard various auxiliary operative procedures, such as the Alexander ventro-fixation and others, and stand squarely by the results of our plastic work on the pelvic floor.

Previous to any surgical procedures, Emmet advocates preparatory treatment. After replacing the uterus and pushing it up as far as may be in the pelvis, the patient is placed in bed, the foot of which is raised from 12 to 18 inches from the floor. The object of this treatment is to cause contraction of all the pelvic veins with a resulting involution of the uterus and vagina. This treatment must, however, be carried out for some time, which will be urged as a serious objection, as many poor patients cannot afford the loss of time. Munde's custom was to amputate the cervix high up and leave a granulating wound at the fornix, which, by its contraction, was to hold the cervical stump backward, when the fundus must fall forward.

If the cervix is repaired, two objects must be attained: first, the complete removal not only of all scarred tissue, but, equally important, of all diseased tissue; second, the excision must be carried down to the plane level with the bottom of the tear where it touches the canal. You may choose between Emmet's and Reynolds' anterior colporrhaphy. In doing the posterior operation the writer would advise carrying the denudation the whole length of the vaginal wall. I have succeeded in obtaining splendid results in five cases operated upon according to the above described methods.

To maintain a prolapsed uterus in a normal position by means of a series of plastic operations is by no means an easy task; still, there is less danger to the patient than in doing either a ventro-fixation or a suspension. The writer has abandoned the operation for ventro-fixation for the following reasons: It is unscientific, as it places the uterus in an arbitrary position — the uterus is made to support rather than be supported. It is a barrier to normal gestation. The circulation is more or less disturbed as the vessels are put on the stretch, and vesicle irritation is sometimes caused by dragging the uterus beyond a certain level, which is certainly done in this operation. Again, no operator can predict in advance how large or how small the resulting adhesions may become. Just here is the element of uncertainty and danger. If small they will probably stretch into a suspensory ligament; if dense and large you may expect trouble.

The writer is opposed to creating artificial supports. Nature has furnished enough if proper use is made of them. After the menopause there may be no such objections as to making a fixed uterus support relaxed tissues, for then it is a functionless organ.

Soon after Dr. Gilliam published his operation known as "round ligament ventro-suspension for retrodeviations," the writer performed it in a number of cases. From a physiological standpoint, it would seem that a suspended rather than a fixed uterus would better meet the demands of gestation. Unfortunately, the writer has not had an opportunity to study the effect of gestation upon ligaments so treated. Like fixation, there are serious objections to it, — the great possibility of intestinal strangulation and obstruction. Again, the uterus is in an arbitrary position, one set of supports doing the work of all. How long ligaments treated thus will act as a sustaining power, is a question the writer is not prepared to answer.

In failures, after a series of plastic operations, the intrapelvic method advocated by Dr. Henry T. Byford, for prolapse and procedentia, is worthy of consideration as it makes use of every available support.

When a hysterectomy is decided upon the vaginal route is preferable, uniting the anterior and posterior peritoneal margins, and then an end to end approximation of the stumps of the broad ligaments ought to form such a perfect support that there will be no danger of any future hernia.

In conclusion, permit me to say that whichever method you may choose, it will depend upon the degree of skill with which the work is executed, whether the outcome will be success or failure.

DISCUSSION.

MALPOSITIONS OF THE UTERUS.

DR. J. C. IRISH, of Lowell: I beg to differ somewhat radically from the reader in regard to the treatment of retrodisplacement and prolapse of the uterus by ventral suspension. I am very much at a loss to understand why it has become so much the fashion to criticise or condemn this operation, or why, when we have at our hands so simple and so effective a means of correcting retroversion and prolapse, so many other more difficult and uncertain procedures should be resorted to.

The four principal criticisms of the after results of the operation are: First, that there is danger of obstruction of the bowels by being caught in the resulting ligament; second, dystocia of labor; third, that the uterus is still left in an abnormal position; fourth, that it is an unsurgical procedure.

I have had a long experience with this operation, going over a good many years, and including more than

one hundred and fifty cases. In no instance in my own practice has obstruction of the bowels occurred from ventral suspension, nor indeed have I ever heard of a case. This danger, I am certain, is very much more imaginary than real. In regard to the dystocia of pregnancy, a few years ago Dr. Noble of Philadelphia investigated over eight hundred cases of ventral suspension in reference to this point. The only dystocia of pregnancy or labor that he established was the following:

In some cases as the pregnant uterus enlarged, there was a thickening of the anterior muscular structure of the uterine body and neck which encroached upon the entrance to the pelvis and interfered with the engagement of the head. The os uteri was also carried backward towards the sacrum.

This single dystocia in labor, due to suspension of the uterus (and this is the only one that is shown), I believe to be entirely avoidable. I am very certain that this faulty development of the pregnant uterus has resulted from the introduction of the sutures on the posterior uterine surface. It is very evident that such forced right-angled attachment to the abdominal wall might interfere with uterine development. By placing the ligatures on the upper anterior surface of the uterus this whole difficulty would be prevented. If my conclusions are correct, the operation should be absolved from the charge of producing this dystocia of labor. It may be true that the uterus after suspension is not left in an exactly normal position, but it is near enough normal so that it ceases to give any trouble to its possessor, and the patient with the suspended uterus is exactly as well satisfied with it as though the position were perfect. At any rate, the patients consider themselves perfectly cured.

This is characterized as an unsurgical operation, but it seems to me that an operation which is so entirely simple, so easy to do, free from danger, and which perfectly corrects the disability for which it is done, is really a very surgical one. Finally, from the result of my own experience and that of my confreres who do ventral suspension, I believe that no other surgical procedure should be considered in the treatment of uterine retrodisplacement or prolapse.

DR. J. G. BLAKE, of Boston, said that he had not seen any unsatisfactory results follow the operation of suspension of the uterus. If danger of strangulation of intestine arose from the adhesions between the fundus and the abdominal wall, this danger is just as great before as after the menopause; yet many writers say that the operation is indicated after the child bearing period, but not earlier. There are definite indications for suspension, in retrodisplacements and moderate degrees of prolapse. In all the cases he has seen, either in hospital or private practice, no trouble has arisen following the operation, and in almost every case partial or complete cure has resulted. The actual cases of strangulation reported as a sequel are extremely few.

SUBPERIOSTEAL FRACTURES OF THE HUMERUS IN CHILDREN.

BY J. S. STONE, M.D., BOSTON.

THE following cases presented themselves in the General Surgery Service at the Children's Hospital and seem of sufficient interest to be worthy of report. They illustrate the dangers of overlooking fractures in children, and call particular attention to the symptoms by which subperiosteal fractures of the surgical neck of the humerus may be diagnosed in the absence of the usual signs of fracture. The medico-legal importance of the recognition of such cases as those to be described is obvious.

For the radiographs the writer is indebted to Dr. Percy Brown.

CASE I. M. F., a girl eleven years old, came to the Surgical Out-Patient Department of the Children's Hospital on May 18, 1903.

Two days before she had fallen from a swing injuring the right arm. The skin had been much inflamed by being rubbed at home with kerosene. No bony lesion was found. There was complete inability to raise the arm from the side. The elbow and forearm were moved with perfect freedom. The child was extremely nervous and of poor physique. The disability was thought to be chiefly hysterical.

A sling was applied. Some atrophy of the deltoid developed later. In a fortnight the arm could be moved much more freely and could be raised somewhat. After six weeks motion was free in every direction. The functional result was perfect. Three weeks later the child was examined more thoroughly. There was then to be felt, perfectly plainly, an irregularity in the neck of the humerus. There was slight forward projection of the upper end of the lower fragment and slight forward bowing. The callus was very small.

The radiograph taken at that time, nine weeks after the injury, confirmed this clinical diagnosis of fracture which was, however, made only after the lapse of two months and in view of the second and third cases.

CASE II. M. S., a girl ten and a half years old, was brought to the Accident Room of the Children's Hospital on July 6, 1903. She had that day fallen down four or five steps hurting her left arm. She was unable to raise the arm from the side. She was examined very carefully in the accident room and no bony injury was found. The diagnosis made was injury to the deltoid. A sling was put on and the mother was told to apply an ice bag to the shoulder. Next day she came back to the Surgical Out-Patient Department. There was then marked swelling and slight ecchymosis in front of the neck of the humerus. There was slight thickening connected with the bone at the same place. The girl could move the forearm and hand freely. The arm could be moved fairly freely except that it could not be abducted. Passive motion was free in all directions, and caused but little pain.

A radiograph was taken at once which showed a transverse fracture of the surgical neck. There was absolutely no displacement laterally. The upper end of the lower fragment projected forward a little and there was slight impaction of about a quarter of an inch posteriorly causing a slight forward bowing.

No attempt was made to correct the slight deformity. The child was treated by coaptation splints and a shoulder cap with a wrist sling. Considerable atrophy of the shoulder muscles came on within a few days. The callus which resulted was small. Union was firm in six weeks and the child was discharged with a perfect functional result.

CASE III. M. O'C., a girl aged six and a half years, was brought to the Surgical Out-Patient Department of the Children's Hospital on July 18, 1903.

Two weeks and a half before she had fallen off a fence. Afterward in spite of the fact that she had no pain whatever she could not raise the right arm from the side. She could use the forearm and hand perfectly but was brought in because of the continued disability at the shoulder which was not diminishing at all.

There was considerable atrophy of the deltoid and supraspinatus muscles, and slight of the infraspinatus.

There was complete inability to abduct the arm. Other motions were free and caused no pain. The hand could be raised above the head when the humerus was carried directly forward. A very slight bony projection could be felt in the region of the surgical neck. The radiograph showed a transverse fracture of the surgical neck. There was very slight displacement forward of the upper end of the lower fragment with slight impaction posteriorly and a slight resulting forward bowing. A callus was forming. A shoulder cap and wrist sling were applied. The resulting callus was small.

The child was discharged with a perfect functional result at the end of seven weeks.

CASE IV. H. C., Jr., a boy of twelve years, entered the General Surgery Service of the Children's Hospital on Oct. 24, 1903.

A few hours before he had fallen off a trapeze striking on his left arm and shoulder. Since the accident he had been unable to raise the arm from the side and any attempt to do so caused pain. The motions of the forearm and hand were free but there was absolute inability to raise the arm from the side, and passive motions at the shoulder caused slight pain. The head of the humerus rotated in normal position. There was no crepitus. The only deformity was a slight fulness over the anterior surface of the humerus just below the head. There was slight tenderness at this point. There was slight shortening. Within a few days slight ecchymosis appeared along the upper part of the biceps. The radiograph taken the day of the injury showed a transverse fracture of the surgical neck with slight impaction and slight forward and inward bowing. The boy was treated with a wrist sling and swathe and axillary pad. After six days in the hospital he was sent to the Surgical Out-Patient Department. In six weeks he was discharged with a perfect functional result but there remained even at the end of six months a very slight projection forward on the anterior surface of the neck of the humerus.

CASE V. M. T., a girl of eleven years, was brought to the Surgical Out-Patient Department of the Children's Hospital on Dec. 30, 1903.

Two days before while playing she had fallen with the left arm outstretched. Another child fell across her. Immediately there followed inability to use the arm. The mother noticed tenderness and some ecchymosis about the shoulder. The pain was considerable.

Examination showed considerable atrophy of the deltoid and slight of the supra- and infra-spinatus muscles. There was slight fulness and tenderness in front of the surgical neck of the humerus. Passive motions of the arm were normal, but there was absolute inability to raise the arm from the side, especially when the forearm was supinated.

The radiograph showed a fracture of the surgical neck with very little displacement. A shoulder cap and wrist sling were applied. In three weeks a firm, small callus could be felt. In five weeks the child was discharged well with perfect motion.

These five cases illustrate the risk of overlooking subperiosteal fractures in children.

In the first case the fracture was completely overlooked and the trouble was regarded as chiefly hysterical. The shoulder was carefully examined by several competent observers. It was true that the child was extremely nervous and excitable, but the real nature of the injury was not detected until the next two cases threw additional light upon it. Fortunately the arm was kept quiet in a sling so that in spite of the inefficient treatment the ultimate result was perfectly satisfactory.

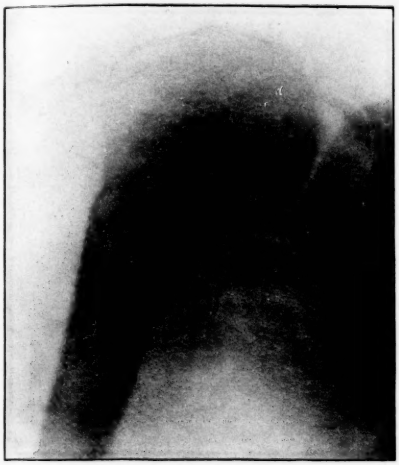
In the second case the injury was thought to be to the deltoid when the child was seen in the accident room. Next day when seen in the Out-Patient Department the increased swelling and slight ecchymosis showed that there was some more serious injury. The swelling was greatest anteriorly just below the head of the humerus. The radiograph established the diagnosis at once. Fortunately a sling had been worn and so further harm had been prevented, though the fragments may have moved slightly if one judges by the ecchymosis and swelling.

With the first two cases in mind the diagnosis was at once suspected and promptly confirmed by the radiographs in the other cases, in spite of the fact that the objective symptoms, aside from the inability to use the deltoid, were so slight.

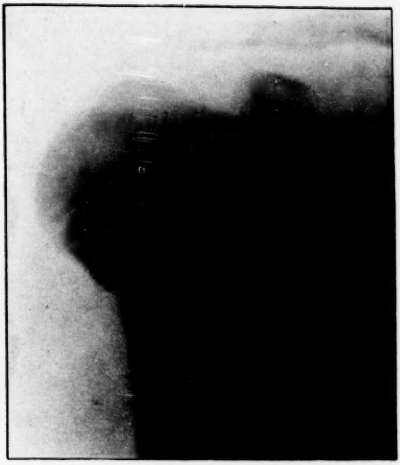
The cases are so similar, in fact so nearly identical, that it seems that the diagnosis should be made with assurance from the clinical symptoms without the aid of the radiograph. Each occurred in a child beyond the age at which greenstick fracture is most common. Each resulted from a fall upon the outstretched arm. In each there followed absolute inability to use the deltoid. Each child could with varying hesitation and difficulty raise the hand to the face and the top of the head but always with the arm kept as close to the side as possible. In each, passive motions in all directions could be made to the full normal limits and were guarded by but slight spasm. Each had a slight atrophy of the deltoid and scapular muscles.

The deformity in each case was trifling. Each had a very sharp, bony ridge on the anterior surface of the neck of the humerus just at the seat of fracture; but this deformity might easily be overlooked unless attention was directed to its exact location. Each had slight localized tenderness at the seat of fracture. Each had very slight pain about the shoulder. The two signs of fracture ordinarily sought, crepitus and abnormal mobility, were conspicuously absent in each case.

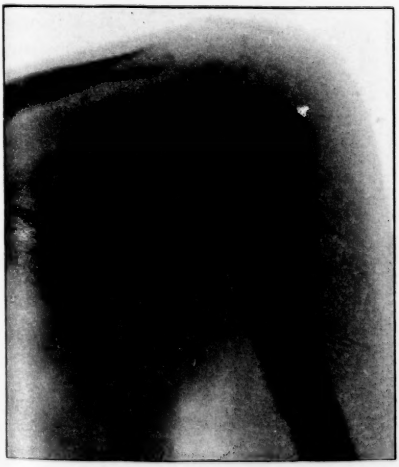
These injuries belong to what may be called subperiosteal fractures. Greenstick fractures occur most frequently in somewhat younger children. The latter term should be confined to those cases in which the cortical bone on the convex side is broken but on the concave side is merely bent at the point of fracture. In a true greenstick fracture there is thus always an angular but never any lateral displacement. In each of these cases the radiograph showed the fracture to be transverse with slight lateral displacement. In none of these cases except the fourth was the impaction alone sufficient to have maintained the fragments in their relation to each other. This is shown by the radiographs and perhaps by the absence of shortening. Impaction may mask a fracture, but in children the absence of marked deformity, the absence of



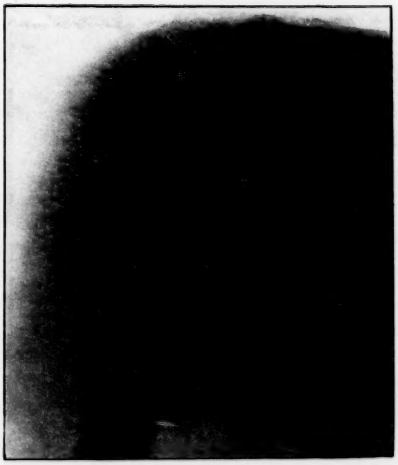
CASE II. July 7, 1903.



CASE IV. October 24, 1903.



CASE III. July 18, 1903.



CASE V. December 30, 1903.

crepitus, and the absence of abnormal mobility are to be attributed in part to the slight impaction, but chiefly to the toughness and strength of the periosteum.

When after a fall on the arm or shoulder children are unable to abduct the arm but present none of the other signs of fracture or dislocation and are able to move the arm in other directions most careful examination should be made to determine localized tenderness anteriorly just below the head of the humerus, together with a slight irregularity in the contour of the bone at the same point. These signs are sufficient to establish the diagnosis of fracture of the surgical neck, and should deter one from further attempts by rough handling to secure crepitus or mobility.

THE PHYSICAL RELATIONSHIP OF FINSEN LIGHT, RONTGEN RAYS AND RADIO-ACTIVITY.*

BY WALLACE C. SABINE, A.M., CAMBRIDGE,
Assistant Professor of Physics, Harvard University.

There has recently come into medical or surgical use three physical agents or processes, — Finsen light, Röntgen rays and the radiations of radio-active substances. All three are capable of producing sciagraphs, though of varying excellence. All three produce somewhat similar changes in normal and diseased body tissues. They are thus related in their effects, and the present purpose is to trace any physical relationship that may be the basis of this similarity. All reference to the conditions under which they are produced and the method of handling them will be omitted, and only their essential natures considered, — Maxwell's electromagnetic theory of light, of course in its simplest form, J. J. Thomson's highly probable hypothesis in regard to the nature of Röntgen rays, and the commonly accepted but rather complex conception of radio-activity. Finally, in looking for that which all three have in common, we shall find it in their so-called ionizing effect, — the breaking of molecules into subatomic particles, charging the larger with positive and the smaller with negative electricity. This effect common to the three is perhaps the intermediate process preliminary to the final physiological result.

The light medically rechristened as Finsen light has long been known to physicists as ultra-violet light, and known to have many remarkable physical effects. It differs from visible light only in the frequency of its vibrations. Visible light in turn differs only in frequency from the electromagnetic waves predicted by Maxwell, first discovered electrically produced by Hertz, and later made of practical use in a sensational manner by Marconi. To understand the nature of Finsen light, therefore, one has only to understand the nature of the waves of wireless telegraphy. While the difference in frequency and in the length of waves is enormous, in essential nature the two are identical.

* Read before The Massachusetts Medical Society, June 8, 1904.

The conditions of wireless telegraphy are so familiar to every one that it furnishes an excellent starting point for the explanation of the nature of the electromagnetic waves and of the ether. When the electricity surges up and down the vertical wire at the sending station, and this occurs whenever a spark passes, waves radiate from it in all directions horizontally. These waves have a dual nature. They consist of electrical stresses vertically — that is to say, parallel to the wire — and magnetic stresses horizontally. This point is, perhaps, worth elaborating slightly. The ether has three known attributes. These are ordinarily spoken of as its power to transmit electric, magnetic and gravitational forces. The mental picture which the physicist has before him is a little more definite than this. He usually pictures to himself the ether as having some sort of mechanical structure, and a number of crude models have been devised by different men. These, however, are most unsatisfactory, and the only safe statement is that the ether is capable of transmitting an electric and a magnetic stress. But his working conception is that an electric charge actually alters the condition of the ether; that this spreads to greater and greater distances; and that this condition of the ether is of such a nature that any other electric charge, which in the unaltered ether would experience no force, will, in the altered ether, experience a force urging it in a particular direction. Further, the ether is of such a nature that a magnet alters it, first near at hand, but in a very short time at very great distances. This change in the ether when completed differs from the former change, for now a magnet is necessary to detect it. And, moreover, a most important fact is that a *moving* magnet or a moving electric charge produces both changes in the ether at the same time. Considerable is known in regard to these stresses in the ether, — for example, their velocity of propagation, but not enough is known to make it possible to construct a detailed mental picture. The ether also transmits gravitational stress, but nothing is known in regard to this, not even the velocity with which it is transmitted.

Returning to the waves of wireless telegraphy the application will be evident. When the electricity with which the wire is charged surges up and down, it changes the ether in its immediate neighborhood, producing some modification, we know not what; we only know that it spreads like an exceedingly rapid contagion, — one hundred and eighty-six thousand miles a second, and that, on finding at any point an electric charge or a magnet, exerts on it a force. As the electricity surges first up and then down the wire, the modification of the ether is reversed, and waves are formed. Ordinarily in wireless telegraphy these waves, notwithstanding their enormous velocity, are about a mile in length. Were the sending wire short, the waves would be proportionately short. This process of shortening the conductor over which the electric oscillations take place has been carried so far that waves have been obtained only about one eighth of an inch

in length, and, could this process of getting shorter and shorter waves by using smaller and smaller oscillators be carried far enough, they would be identical with visible light, — a little farther, and only a little farther, and the result would be Finsen light. Throughout all this the point to be remembered is that these waves are merely such changes in the ether that they exert a force on a magnet if they meet a magnet, or on an electric charge if they meet an electric charge. With the magnetic effects we are not here concerned, for the tissues of the human body are almost wholly non-magnetic, not quite, but almost wholly so. With the electric forces exerted by these waves we are concerned, for every molecule of the human body carries positive and negative charges. The application of all this, however, will be made later.

Röntgen rays are in many respects similar to light rays. Here, however, the source is not an oscillating electric charge which gives out a train of waves, but a negatively charged particle abruptly stopped by striking against the platinum disc in the center of the exhausted bulb. The result of this sudden stoppage, J. J. Thomson has shown, is a very thin wave, or, as he calls it, a pulse sent off through the ether. These pulses are, like light waves, electromagnetic, but instead of being in a train are single, are numerous as the number of bombarding particles is great, but only one pulse arises from each bombarding particle. The light waves and the pulses differ in another important respect. The Röntgen pulse is exceedingly thin. Thus, the length of a light wave is such that if two points were placed at a distance apart equal to the length of the wave, the most powerful microscope would just be able to resolve them. A Röntgen pulse is only about one ten-thousandth as thick. This exceeding thinness is the source of its great penetrating power. Such is J. J. Thomson's hypothesis in regard to the nature of Röntgen rays. The proof of this hypothesis might be found in a measurement of the velocity of the rays. Should the velocity be equal to that of light, the hypothesis would stand confirmed. Only two measurements have been made, by Brunhes and by Blondlot. The velocity was found to be the same as that of light; but unfortunately the method employed was faulty in the extreme. Moreover, further doubt has been thrown on this work by the subsequent claim by Blondlot of the discovery of N rays — an observation which no physicist of high standing has been able to repeat, although many have tried. There is, therefore, no direct evidence of this kind supporting the hypothesis advanced by J. J. Thomson. Nevertheless, it stands as the most probable explanation of Röntgen rays, and is generally accepted.

The explanation of the radiations from radio-active substances has probably been made familiar by many recent discussions, particularly by Rutherford, who has contributed so much both theoretically and experimentally. These radiations apparently consist of the emission of positively charged particles, negatively charged particles and ether pulse. The phenomenon is just as if an atom of radium in its minute structure consisted of two sizes of particles: the large, about the size of a hydrogen atom, charged with positive electricity, the others very much smaller charged with negative electricity, and, through some power, in regard to which there is absolutely no adequate hypothesis, this atom would throw off with tremendous velocity these particles. The positively charged particles form the so-called alpha rays, the negatively charged particles the beta rays. As a necessary consequence of any such process we should expect, as pulses in the ether, the so-called gamma rays. For just as the sudden stoppage of a rapidly moving electric charge causes an electromagnetic pulse in the ether, so the sudden starting of an electric charge must produce a pulse in the ether. Thus the Röntgen rays and the gamma rays are exactly the same in nature, and differ — if they differ at all — only in thickness. Whether the one or the other is thicker depends on whether it takes a longer time to stop the particles bombarding the platinum vane, or to start the particles off from the disrupting atom. So on this depends their relative penetrating power. The larger positively charged particles constituting the alpha rays, because of their size and comparatively low velocity, have but slight penetrating power, and in consequence are of only remote medical interest. The negatively charged particles and the gamma pulses have much greater penetrating power and are pertinent to the present discussion.

Coming then to the physiological problem we have the effect of three physical processes to consider, — a train of ether waves, ether pulses and a bombardment of negatively charged matter. Of these, the first two have a good deal in common. It is almost axiomatic to say that Finsen light and Röntgen rays, being purely phenomena of the ether, exert their first effect on atomic matter, and have their physiological effects as secondary results. While these waves and pulses are both electric and magnetic, we may, because of the non-magnetic nature of the tissues of the body, consider only the electric effects. Every atom of the body carries electric charges. It therefore is acted on by forces as these waves or pulses pass. A few years ago we would have said that the only effect of such forces would be to increase the motion of the atom as a whole, and it is pretty well established that this would have the effect of raising its temperature or of altering its chemical relationship. Very probably the greater part of the energy of all these processes is absorbed in this way, but it does not represent the whole effect. Within the last few years, new conceptions of the atoms have been developed. It is no longer regarded as an indivisible mass of matter bearing an indivisible charge. And not merely the atom of radium and other radio-active substances must be regarded as complex, but the collateral investigations of the last few years have shown that the atoms of other substances also are not the simple bodies formerly supposed. The phenomena of

spectroscopy long foreshadowed this, but only recently have atoms been dismembered, and the separate parts studied. This work is only now at its height, and the rather large mass of observations and data has not been correlated, and is in a somewhat chaotic state. Until all the conditions are known entire consistency is not to be expected. Still, the general conception of an atom that results from these investigations is, either that the atom is a central body to which is bound one or more minute electrically charged particles called corpuscles, or that it is a cluster of such corpuscles. The mass and the electric charge of these corpuscles have been determined for a large number of gases, and have been found to be the same for all, no matter what may be the total atomic weight. The mass of a corpuscle in any gas is about one eight-hundredth part of the mass of a hydrogen atom, while the charge on the corpuscle is about equal to the charge carried by a hydrogen atom during electrolysis. When a negatively charged corpuscle is torn from the atom, and it is now known that there are a great many ways of doing this, the remainder is charged positively. The two parts thus separated are called ions, and the process of separating them is called ionization. There are a great many ways of producing ionization. Almost any violence, particularly if it be electrical, done to the atoms of a gas may tear off a corpuscle from those atoms that happen to be in a sensitive condition. Thus Röntgen rays in passing through air or any other gas ionize it. The same is true of the radiations of radio-active substances; and this ionization may be produced by either part of the radiations — the radiant charged particles or the gamma pulses in the ether.

The phenomena of ionization of gases by the three physical agents under consideration present considerable variation; some of these, although by no means all, can be explained. If we compare, for example, Röntgen rays and Finsen light, we shall find that Röntgen rays ionize air by merely passing through it, and Finsen light does not; although there is some evidence that the air is ionized by the light discovered by Schumann, this light being of shorter wave length than that employed by Finsen. Or, speaking more broadly, any gas can be ionized by Röntgen rays, while light can ionize only a few gases directly. The explanation of this discrepancy between two processes so closely allied as Röntgen rays and light is as follows: The total energy of the Röntgen rays from an ordinary bulb is very much less than that of ultraviolet light as it would ordinarily be used in an experiment. One might therefore very reasonably, at a first glance, expect less rather than greater effect. Against this is the following consideration: The number of Röntgen rays, that is to say, the number of pulses coming from the bulb, is very much less than the number of waves in the ultraviolet light; so much less indeed that the energy in each pulse may easily exceed the energy in each wave. Moreover, the pulse of the Röntgen ray, being only one ten-thousandth as long as the wave, the electrical stress exerted for equal energies in the single pulse or wave rises to an enormously greater maximum. It is on the maximum force that the separation of the ion from the atoms depends. Thus in their great maximum force the Röntgen rays have the advantage. On the other hand, light has an unquestioned advantage in its periodicity which results in a selectivity through resonance. This line of argument, if carried out, would rapidly pass beyond the limits of the present paper. The above is cited merely as an example of what must be looked for if one goes below the surface of the phenomena and beyond its empirical application.

In résumé, these three physical processes are electrical — not merely the Röntgen rays and the radiations of radioactive substances, but also the ultraviolet light. Their first effect is that of electrical violence upon the atom, which results in an increased atomic energy, and in the case of some of the atoms of partial dismemberment, and a resulting ionization. The great physiological efficiency of the Röntgen rays suggests that ionization is the more important process.

Finally, it should be pointed out that the greater part of the study of these processes has been carried out on gases, while the physician is concerned with their effects on liquid and solid substances. Some work has been done in this field, and ionization results obtained. If there is to be, corresponding to the rapidly growing physiological chemistry, a physiological physics, there lies here in the ionization of liquids a field which the pure physicist, as such, is not likely to attack for some time to come.

Medical Progress.

PROGRESS IN GASTRO-INTESTINAL DISEASES.

BY ELLIOTT P. JOSLIN, M.D., BOSTON.

FETOR EX ORE OF GASTRO-INTESTINAL ORIGIN.

Rosenheim [1] contributes an interesting and valuable article on this disease which so often baffles treatment. Usually a foul breath is due to disease in the mouth, to bad teeth, the tonsils, the nose and throat. If foci here and in the respiratory tract can be excluded, attention should be directed to the digestive tract even if no digestive disturbance is apparent. Besides the digestive tract, a foul odor to the breath may be observed in uremia and in prostatic disease accompanied by retention and decomposition of the urine in the bladder. Having excluded all such sources one systematically examines the alimentary tract.

The esophagus may be the seat of the disturbance if there is cancer or stagnation of the contents. Fetor is not, however, an invariable accompaniment. When present it is usually

[1] Die Therapie der Gegenwart, 1902, Nov., p. 483.

relieved by systematic lavage with water or disinfecting solutions.

Fetor is also uncommon in diseases of the stomach except when these are associated with disease of the mouth, *e. g.*, inflammation of the tongue and mucous membranes, swelling of the gums and irritation of the salivary glands. In such cases treatment of the mouth and teeth results in a cure, even if the lesion in the stomach persists.

Fetor may occur in catarrh, ulcer and atony of the stomach when these diseases are associated with decomposition and regurgitation of food, but this same odor may appear in a healthy person who has eructations after eating meat and fatty foods like sausage, bacon and cheese. Cancer and marked dilatation are generally accompanied by fetor, but even in advanced cancer the products of decomposition may pass on into the intestine. Here they may be rendered innocuous or be absorbed into the blood and exhaled by the lungs, thus infecting the breath.

The intestine is the most common digestive source of fetor. This is most constantly present in cancer and stenosis, less common in moderate stenosis and constipation.

The foul odor reaches the mouth usually by way of the lungs, though the gases may pass from the intestine to the stomach and there be belched. Fetor may accompany diarrhea, especially when acute indigestion is the cause, or in infectious processes associated with diarrhea, such as dysentery, tuberculosis, typhoid, more rarely in diffuse intestinal catarrh.

Rosenheim recounts several instances of fetor of intestinal origin accompanied by little subjective intestinal disturbance. The following is an example: A girl twenty years of age whose teeth and throat were pronounced healthy by specialists was troubled with fetor. She had slight constipation, but no gastric symptoms. The secretory and motor functions of the stomach were normal and the test breakfast odorless, though at the time of its removal the breath was bad. Urine normal. The stools were in hard balls, but otherwise showed no striking abnormality. An aperient water was given and a diet prescribed which contained a little white meat (chicken, fish, veal) simply prepared, milk, bread and butter, simple desserts, well cooked vegetables and fruit which were finely divided and free from skins and husks. Following this diet recovery took place in four weeks.

Another similar case is mentioned. At first the patient was put on a mixed diet; in the second period tea, red wine, meat, fish, white and black bread, and butter were given, and in the third period milk, one portion of white meat, white bread, zwieback, desserts and purée of vegetables. The fetor was least in the third period, though still manifest. The following diet was then prescribed: milk, tea, coffee, rice, macaroni, sago, nudels, simple farinaceous desserts, thoroughly baked white bread, zwieback, butter, a simple aperient water, lemonade, sweet fruit juices, sugar, the white (only) of egg, spinach, the tops of asparagus, artichokes, carrots, potato purée in small quantity. All sorts of cabbage, peas and berries were forbidden. Upon this diet the foul breath soon disappeared. Gradually the diet was enlarged by the addition of white meat one day, fish another, and finally a gradual return to a general diet was accomplished except that the meat was limited.

Rosenheim reasons from exclusion and from the effects of treatment that the fetor in these cases is of intestinal origin, and offers several hypotheses to account for it. (1) Slight changes may exist in the intestine which allow greater absorption of foul though normal products. (2) The organism may have lost its power to destroy such products. (3) An abnormally large quantity of products of normal quality may be produced.

What is the source of the products which contribute to the fetor? Clinical experience and experiment indicate the albuminous bodies. These decompose with bacteria to indol, skatol, phenol, oxyacids, ptomaines, volatile fatty acids, ammonia, sulphuretted hydrogen, methyl mercaptan, methane, hydrogen and carbonic acid,—all substances which can be excreted through the lungs.

ELECTRICITY IN DISEASES OF THE STOMACH.

Borri[2] working in Ewald's clinic upon the action of electricity on the stomach, when applied internally, summarizes his results as follows: The therapeutic advantages which can be attained by the application of the electric current within the stomach are negative as far as secretion and motility are concerned. On the other hand its action is noteworthy upon the sensibility, but only when the galvanic current is used. With the negative pole in the stomach there occurs an anesthetic action.

DYSPEPTINE IN DISEASES OF THE STOMACH.

Dyspeptine is a natural gastric juice obtained from the pig which Hepp in Paris has recently introduced into the treatment of gastric disorders. The original suggestion to use natural gastric juice therapeutically came from Pawlow, and later Hepp found that the most suitable variety was that obtained from the hog. The acidity reckoned in terms of hydrochloric acid is .2% and the dried extract 2.3%. The original preparation keeps well in the cold. Mayer reports the result of its use in v. Noorden's clinic.[3] It was given chiefly to patients with catarrh of the stomach and absent or diminished hydrochloric acid, and to cases of tuberculosis and chlorosis. The results of treatment were very favorable and manifested in decrease of subjective discomfort, increase of appetite and gain in body weight, and in some instances a return of the hydrochloric acid to normal limits. Treatment extended over five to seven weeks. Dyspeptine in 15 cc. (half ounce) doses was given during and

[2] Berl. Klin. Woch., 1904, No 26, p. 695.
[3] Die Therapie der Gegenwart, 1903, Dec., p. 541.

at the end of each meal, later simply three times a day. It was administered undiluted or disguised with essence of peppermint, lemon juice or beer.

THE DIAGNOSIS OF ULCER OF THE STOMACH BY THE DEMONSTRATION OF THE OCCULT PRESENCE OF BLOOD IN THE STOOLS.

Boas [4] calls attention to the importance in diagnosis of the demonstration of small amounts of blood in the stools. Frequently it is possible to find small quantities of blood in the stomach in ulcer, but many times it is not desirable to insert the tube for this purpose. Moreover, the insertion of the tube may easily cause slight hemorrhages even if ulcer is absent. It may be questioned whether the presence of blood in the stools can be demonstrated if the gastric hemorrhage is slight, but in answer to this are several observations which show that the ingestion of 3 cm. of blood are sufficient for this purpose.

In such examinations the presence of blood from the gums, the respiratory system and the lower intestinal tract must be excluded. In women one must avoid contamination by blood in the urine or from the genital tract.

A positive blood test in the feces, obtained under the above precautions, is obviously of much value; not enough data are as yet accumulated to demonstrate the worth of a negative test.

The method is as follows: Five to ten grams feces are reduced to the consistency of soup with water. The fat is then partially removed with 20 cm. ether, which also prevents annoying emulsions in the further course of the test. Three to five cc. glacial acetic acid are then added to the stool, the whole poured into a test tube and again extracted with ether. The addition of alcohol must be carefully avoided since alcohol alone will color the guaiac turpentine mixture blue. A few kernels of well pulverized guaiac resin are then added to the ether, carefully shaken, and then twenty to thirty drops old oil of turpentine poured in. After a little shaking, on setting aside there gradually forms a violet color, even deepening to blue, which becomes more striking on the addition of chloroform. Since the blue color is frequently confused with brown shades, it is well to control it by another test suggested by Klunge and by Schaer and controlled by Rossel. Instead of guaiac they use aloin. A knife point full of aloin is placed in a test tube and 3-5 cm. of 60–70% alcohol added and gently shaken. Ten to fifteen drops of this freshly prepared mixture, when added to the acetic acid ethereal extract of feces containing 20–30 drops of turpentine, give a bright red color in the presence of blood, and on standing acquire a pretty constant cherry red color. If there is no blood, the aloin reddens the fluid a delicate rose red, at the earliest in one or two hours and later turns to a yellow. Twenty-five to thirty drops of hydrogen peroxide can be substituted for the turpentine.

[4] Deut. Med. Woch., 1903, No. 47, p. 865.

A GASTRIC PHENOMENON IN MIGRAINE AND EPILEPSY.

Mangelsdorf [5] some ten years ago observed that the stomach of one of his patients was much larger during an attack of migraine than on the preceding day. Since then he has repeatedly confirmed his first observation and more carefully studied the phenomenon. As the result of frequent attacks of migraine with the accompanying dilatation and contraction he considers that the tone of the stomach is gradually permanently altered. Atony ensues which finally leads to gastric and intestinal disturbance. The author shows schematically the increase in the vertical diameter which occurs during an attack of migraine, and how this changes as the tone of the stomach improves under appropriate treatment. The difference in size is less marked in the advanced cases, because the stomach is then already much enlarged. When the stomach is nearer normal size in the free intervals, as in the early cases, the effect of an attack is most striking.

Mangelsdorf examined 409 of 469 cases of migraine which have come under his observation, and in all but one the stomach was abnormal. In idiopathic epilepsy the same phenomenon has been noted by Mangelsdorf. In a later publication he will consider the subject more in detail.

PEGNIN.

Sigel [6] in Ewald's clinic has made use of pegnin, a rennet ferment combined with milk sugar, to make milk more readily digestible. This powder was first described by von Dungern. By its action the milk is said to be precipitated in as fine curds as human milk with the addition of rennet.

The preparation of the milk is simple. The milk is boiled in a glass flask for half an hour, then cooled to 90° F. and a tablespoonful of pegnin added to each liter. After a few minutes the milk curdles. The milk thus curdled is then vigorously shaken until the flocs have disappeared. The milk is then ready for use; it should not, however, be further heated.

The taste and nutritive value are not disturbed by this process. Sigel reports that while others have employed this milk with children, he has used it chiefly with adults, and especially with those suffering from gastric disease in which there is a diminished secretion of rennet, — chronic gastritis, achylia gastrica. It was further used in those patients who might suffer from the irritation of coarse curds, notably cases of gastric neurosis and gastric ulcer. A large number of ulcer cases were fed, after the period of rectal nutrition was completed, almost exclusively with this milk. In these various classes of patients the milk was taken gladly almost without exception and was well borne. Sigel, therefore, would heartily recommend the use of pegnin.

[5] Berl. Klin. Woch., 1903, Nov. 2, p. 1004.
Berl. Klin. Woch., 1904, No 1, p. 17.

(*To be continued.*)

Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

PROCEEDINGS OF THE TWENTY-FIFTH ANNUAL MEETING, HELD IN ST. LOUIS, JUNE 14, 15, 16 AND 17, 1904.

THE Association met in the Assembly Hall of the Board of Education under the presidency of DR. N. P. DANDRIDGE of Cincinnati, Ohio.

PRESIDENT'S ADDRESS.

PRESIDENT DANDRIDGE departed somewhat from the practice of his predecessors, and instead of bringing before the Association some medical topic based on his own work, or attempting a discussion of some subject of active interest, he took the members to the backwoods, and interested them in the life and exploits of a pioneer doctor. He depicted a man of high scientific attainments and true culture, with all the elements of character which become the doctor and the man. He gave an exhaustive sketch of Antoine Francois Saugrain de Vigni, who was born in Paris Feb. 17, 1763. He came from a long line of librarians, booksellers and printers, who, as far back as Charles IX in Lyons and Henry of Navarre, had served the royal family of France. His knowledge of mineralogy made his advice often called for in the development of the mines in the Ohio valley. In the wilderness he supplied himself with ink from a natural chalybeate water and an infusion of white oak bark, and when in need of a fire, lighted it from a lens made by two water crystals with clear water between. Dr. Saugrain gave notice of the first vaccine matter brought to St. Louis, and indigent persons were vaccinated gratuitously. He practised in St. Louis till his death, in 1820. He must have been eminently successful, for he left a large landed estate for the support of his wife and six children. His scientific work lives in tradition, and has gained for him the title of the "First Scientist of the Mississippi Valley."

WHAT ARE THE MINIMUM REQUIREMENTS FOR ASEPTIC SURGICAL OPERATIONS IN HOSPITALS WHERE THE SURGEON IS ASSISTED BY A LARGE STAFF OF INTERNES AND BY NURSES FROM A TRAINING SCHOOL?

This subject was discussed with great detail by DR. GEORGE H. MONKS of Boston, Mass.

MINIMUM REQUIREMENTS FOR ASEPTIC OPERATING IN A HOSPITAL IN WHICH THE PERSONNEL OF THE OPERATING ROOM IS PERMANENT.

DR. A. J. OCHSNER of Chicago, in a paper on this subject, pointed out the fact that with a permanent personnel a definite system could be developed, which was most satisfactory, because the observations which suggested changes, as well as those which confirmed satisfactory methods, could be carried through a large, continuous series of cases under unchanged external conditions.

Stress was laid upon the importance of simplicity in the methods chosen. The less that was done in any given case, the slighter was the likelihood of doing harmful things. There should be uniformity in carrying out a plan of work, in order that every one connected with the system might know what had been done and what was to be done by the other members of the personnel in any given case. Above all things, the methods should be reasonable in their details. This would make the work more attractive, and consequently more satisfactory to those engaged in its prosecution.

The author then gave a detailed account of the system followed by him and his assistants at the Augustana hospital, where he had had an opportunity to develop uniform methods with permanent conditions during a period of fifteen years. The system comprised disinfection of patient, operator, assistants' and nurses' hands, instruments, silk, silkworm gut, horsehair, drainage tubes, hand brushes, dressings, implements, towels, sheets, etc.

The author also discussed drainage and irrigation.

Stress was laid particularly upon the danger arising from tying sutures too tightly, thus causing pressure necrosis, which favored the development of micro-organisms accidentally introduced.

The method of selecting assistants and nurses was described, and a table illustrating the manner in which each assistant recorded the progress of the wounds under his care was appended.

DR. CHARLES HARRINGTON of Boston, Mass., read a paper, by invitation, in which he detailed his studies in asepsis.

These three papers were discussed jointly.

DR. DE FOREST WILLARD of Philadelphia said that surgeons who had to deal with the practical side of asepsis in surgical operations knew that their results satisfied them to a certain degree, but it must be confessed that they had failures, and it was very essential to know whether the failures were due to the method or methods employed, or whether there were difficulties which could not be overcome. Difficulties would beset surgeons, but the question resolved itself largely into one of extreme care on the part of every one, from the surgeon down to the lowest assistant, who had the materials in charge or in preparation. There could be no doubt that a hospital which had permanent assistants, permanent nurses, was the one that was likely to secure the best results from operative procedures on the patients under its care.

DR. CHARLES B. NANCREDE of Ann Arbor, Mich., emphasized two important points, one of which was inhibition, and the other tissue resistance. A germ might be inhibited to the point that would render it safe in a given wound.

DR. JOHN E. OWENS of Chicago stated that different results were reported by different surgeons after using the same methods, and he had often wondered whether some of them might not have been due largely to the habits of surgeons.

So far as the disinfection of hands was concerned, a few years ago he was compelled to stop the use of corrosive sublimate on account of the condition of his hands, and since then he had been scrubbing them thoroughly with soap and water, keeping the nails of the fingers pared down, and afterwards washing the hands with salt solution and alcohol, and he thought his results were as good in hospital work as where other chemicals for sterilization were used.

DR. W. W. KEEN of Philadelphia spoke of his own method and the results which he had obtained by some experiments. He had adopted for several years past for the cleansing of his hands a method which was first directed to the attention of the profession by Weir, namely, the use of chloride of lime and carbonate of soda. The hands were washed thoroughly with soap and water, and in order to do this, he had in his own private hospital and at the clinic at Jefferson, little egg boilers, which were practically hour-glasses or sand-glasses that were reversible. These were marked "Soft-boiled," "Well done" and "Hard boiled." Soft-boiled corresponded to about three minutes; well done, five minutes, and hard-boiled, seven minutes. He told his assistants that when they had scrubbed their hands until the sand had reached "well done,"

good and faithful servant, they should stop. Every person who took an active part in his clinic had a culture taken from under the thumb, or one or two finger nails, particularly at the root of the nail, and from the free surface of the skin. During the last winter there were 213 cultures made, from the hands of himself and his assistants, in the clinic at Jefferson. Of this number, there were only 3 cases in which any culture was obtained. This made practically a sterility of 97% and an infection of about 3%. There was but one person who was free at every clinic, and that was the head nurse, who was a permanent official in the operating room. All the other nurses, and all the assistants, except his principal assistant, changed every three months.

He thought the method of keeping such a record of every person's hands served an admirable purpose by creating a sort of rivalry among those who were endeavoring to have clean hands before operation, and it was more to prophylaxis in preventing infection than in the results obtained that he attributed the value of the method.

Dr. W. B. Coley of New York did not believe sufficient stress had been laid upon sterilization of the skin, and although some authorities maintained it could be done properly in a few moments before operation, his experiments showed that with careful preparation the day before operation, in addition to what was done on the day of operation, sterilization of the skin even then could not be said to be perfect. In 250 cases in which he had examined portions of the skin or Reverdin grafts, taken from the field of operation immediately before, 25, or 9%, of the cases showed all kinds of cultures, some of them being staphylococcus and streptococcus. The only case of suppuration in two hundred cases showed a pure culture of the streptococcus. Carefully sterilizing the hands, using tincture of green soap, applied carefully, brushing and hot water, then washing thoroughly with 95% alcohol, with the use of rubber gloves, would give as good results as any of the measures which rendered the hands very hard.

With reference to primary union, an important element in aseptic surgery was to guard against the bruising of tissues.

A CLINICAL REVIEW OF FORTY-SIX OPERATIVE CASES OF DUODENAL ULCER.

This was the title of a joint paper by Dr. Christopher Graham and Dr. William J. Mayo of Rochester, Minn.

The authors stated that a careful history was of prime importance. The leading symptoms in the forty-six cases reported were, first, pain, which might be due to peritonitis, distention from gas formation, pyloric spasm, and the irritation of acid gastric contents on open ulcer. The pain might come on in colics or last for some hours. Second, vomiting, principally of sour, bitter liquids, or, if obstruction supervened, of food after varying intervals. Third, gastric insufficiency from interference with drainage. There was usually hyperacidity of gastric contents, constipation, and a great desire for food, although the patient reduced the diet and ate often a small quantity, but might fail to get relief sometimes obtained in gastric ulcer proper. In latent cases, evidences of blood in the fecal movements might be the only sign. Differential diagnosis from pyloric ulcer in some cases might be impossible. A considerable number of cases closely resembled gallstone disease, and differentiation often could not be made. Such an error in diagnosis did not militate against the clinician, as both conditions were purely surgical, and the differentiation in many cases must be made on the operating table. During the past eighteen months 27% of their operative gastric and duodenal ulcers involved the duodenum in combination — 53.33%. There were 33 males and 13 females; in 43 out of 46 cases the ulcer was easily detected upon abdominal exploration as a thick, white, scar-like area. Liability of duodenal ulcer to perforate was greater than gastric, but more often safely protected by adhesions. Relatively sterile contents was also favorable. In all cases the ulcer was situated in the first two and one-half inches below the pylorus, and entirely above the entrance of the common duct of liver and pancreas, with its alkaline secretion, showing the effect of the gastric juices on the duodenal wall. In all doubtful cases of differentiation between duodenal ulcer, pyloric ulcer and gallstones, the authors recommended making an incision through the right rectus muscle one inch to the right of the median line. Gastro-enterostomy best met the indications, in that it diverted the gastric contents. In acute perforation, suture was recommended, with suprapubic drainage, with after-treatment, and exaggerated Fowler's position, sitting posture.

The 46 cases were divided into 5 groups: (1) Acute perforation of chronic ulcer, 4 cases, 2 deaths. (2) Acute hemorrhage in chronic ulcer, 1 case, 1 death. (3) Duodenal ulcer with gastric complications, 25 cases, 1 death. (4) Duodenal ulcer, with gall-bladder and liver complications, usually due to adhesions from chronic peritonitis, 9 cases, 1 re-operation, no deaths. (5) Eight cases, chronic pain and distress with debility, no deaths. Total, 47 operations, 46 cases,— five operations for acute conditions, with 3 deaths; 42 operations for chronic conditions, with 1 death.

Dr. E. Wyllys Andrews of Chicago had seen in the last year or two several cases in which a marked hyperplasia, patches of exudate, with thickening of the wall of the duodenum, ulceration of the first inch and a half of the duodenum connected with a similar condition of the pylorus, had produced such a degree of massive thickening that clinically at the time of operation it was indistinguishable from carcinoma. In one such case the operation, which was a McGraw elastic ligature gastro-enterostomy, left him in a dissatisfied state of mind, as he feared he should have done a more radical extirpation, and yet in this particular case it was his fortune to do a second operation for obstruction a year after the first operation, and he found, very much to his surprise, absolute disappearance of the thickened massive wall which had formed in the first place and simulated carcinoma. This was what Mayo himself called attention to, namely, when the obstruction was relieved, when the flow was permitted from some other point, the inflammation, or ulceration, at any rate, the hyperplasia disappeared at the point of irritation, and secondary to this again, when obstruction had been relieved by drainage below, the drainage below ceased to act, and again the opening became closed, so that the surgeon had to do sometimes a second gastro-enterostomy.

Dr. John B. Murphy of Chicago said the practical lesson the paper taught was the frequency of occurrence of duodenal ulcer; that it was not recognized, and that it was not differentiated from gastric ulcer or gall-bladder disease, whether it was of infective or of stone origin.

Dr. Alexander Hugh Ferguson of Chicago asked Dr. Mayo if he had outlined for himself the class of cases in which he would do a posterior gastro-enterostomy; also the class of cases in which he would do gastrojejunostomy or Finney's operation.

The speaker mentioned one case in which he did a

pylorectomy, removing the end of the pylorus and a portion of the duodenum, with an excellent result.

Dr. MAYO, in closing the discussion, and in replying to the remarks of Dr. Ferguson, said he did not know that they had ever tried to excise any of these ulcers excepting in connection with Finney's operation. They were irregular and thick; they led to large vessels, close to the common duct, and it was difficult to get a good stump. He thought the best thing to do was to make a gastro-enterostomy, which would afford, at least, temporary relief, but the gastro-enterostomy opening was very likely to contract, so that food would, after a time, continue to pass down over the duodenal ulcerated surface, and sometimes these patients would return for a second operation.

Dr. GEORGE BEN JOHNSTON of Richmond, Va., detailed seven cases of complete removal of the shaft of the tibia, with restoration of the bone.

In the discussion, Dr. DE FOREST WILLARD said it was greatly to be regretted that not only the family physician, but many surgeons, treated such cases as Dr. Johnston had reported, for rheumatism, when there was really no sign of that disease, and they were from the beginning cases of acute suppurative osteomyelitis. Then came the septic symptoms. The physician treated them for typhoid fever and other conditions, until they drifted into the hands of surgeons, with bones absolutely destroyed, the majority of them crippled for life, with deformity of the legs. These cases from their incipiency were virulent in type, and the only time for treatment was forty-eight hours after the onset, and the quicker the surgeon got inside the bone, the better. If cases of appendicitis demanded early operation, surely it was doubly important that cases of acute osteomyelitis should be diagnosed and operated upon early.

Dr. A. J. OCHSNER stated that in a large proportion of cases in which the shaft of the bone was entirely loose, when the periosteum was incised, if the bone was left in place, there would be a regeneration of a considerable portion of the apparently dead bone. If one took such cases as had been described, made an incision which extended from one end of the bone to the other, split the entire periosteum, made it necessary for the flow of lymph to be away from the tissues, left bone there as a bone graft, he had found in a considerable number of cases that there would be a regeneration of a large portion of this bone.

Dr. JOHN COLLINS WARREN of Boston said the subject was one that should be thoroughly discussed, and a message given to the profession to realize the importance of this septic process, so that cases of acute osteomyelitis might be sent to surgeons early and treated properly.

As to treatment, the great point was to prevent the spread of sepsis. This might be accomplished by trephining the bone, by proper disinfection, by a comparatively moderate operation, or it might be necessary in certain cases to do quite a radical operation.

Dr. P. S. CONNOR of Cincinnati, O., said that in some of these cases the disease originated superficially. The cases were uniformly mistaken for erysipelas. The redness of the overlying skin was taken as an indication of the existence of the disease. Then, we had a condition simulating typhoid fever after the disease had existed for a considerable length of time, or rheumatism for a while, then typhoid fever, when the condition did not subside. Early boring of the lower end of the tibia would put a stop to the trouble. A moderate incision would not infrequently end the trouble if boring did not.

Dr. S. H. WEEKS of Portland, Me., said that while many of these cases began as a periostitis, requiring a simple incision down upon the bone, there were many others which commenced as an acute osteomyelitis in the medullary canal, and he believed under such circumstances, when an incision was made down to the bone, there should be an opening made into the medullary canal, and that canal drained.

(To be continued.)

THE RHODE ISLAND MEDICAL SOCIETY.

THE ninety-third annual meeting of the society was held in Masonic Building, Providence, on Thursday, June 2.

The House of Delegates met for the first time. There were present: Drs. Wm. R. White, President; S. A. Welch, Secretary; Horace G. Miller, Geo. D. Hersey, F. B. Fuller, John Champlin, G. T. Swarts, F. E. Burdick, W. A. Risk, Julian A. Chase and W. E. Wilson.

A letter was read from Dr. Frederick Holme Wiggin, urging the passage of resolutions in favor of a national incorporation for the American Medical Association. After discussion it was voted not to instruct the national delegate in this matter.

Dr. WHITE called attention to the discrimination in railroad rates against New England. From the west and central portions of the country the rate for delegate is one fare and a dollar; from New England it is one fare and a third.

Dr. CHAMPLIN said that the attention of the proper committee of the American Medical Association would be called to this matter.

The general session was opened at 11.30 A.M., by the President, Dr. Wm. R. White.

Dr. GEO. S. MATHEWS reported for the trustees of the Chase Wiggin Fund that one meeting had been held and a plan of work outlined.

Dr. WM. R. WHITE reported for the trustees of the Fiske Fund that the prize of $250 offered last year for the best essay on the subject, "The Action of Light as a Therapeutic Agent," had been awarded to Dr. Leonard Keene Hirshberg of Johns Hopkins University, Baltimore, Md. The coming year a prize of $250 is offered for the best essay on the subject, "The Sequelæ of Gonorrhea in Both Sexes."

Announcement was made of the deaths of Dr. Elisha P. Clarke at Hope Valley, March 17, 1904, of tuberculosis, and of Dr. Charles D. Wiggin at Mystic, Conn., on May 21, 1904, of pneumonia. Dr. White said that Dr. Clarke was formerly an honored president of the society and of great influence in the town in which he lived, an influence professional, mercantile and social.

Dr. George M. Crowell, formerly of Pawtucket, has become a non-resident member and settled in New Canaan, N. H.

The following physicians have joined the society since the last meeting;

From the Newport Medical Society, Drs. Alexander J. Anderson and Wm. A. Sherman of Newport, Dr. Floyd W. Rogers of Tiverton and Dr. Berton W. Storrs of Portsmouth.

From the Providence Medical Association, Drs. Joseph C. O'Connell, Clinton S. Westcott, Frederick G. Phillips, George S. Hathaway and Remington P. Capwell, all of Providence.

Dr. Wm. J. McCaw was appointed delegate to the commencement of the Rhode Island College of Pharmacy and Allied Sciences.

As delegates, were presented from the Massachusetts Medical Society, Dr. Grace Wolcott; from the New Hampshire Medical Society, Dr. Oscar Young, and from the Vermont State Medical Society, Dr. H. Edwin Lewis.

Dr. Lewis said that in the last two years the Vermont Society had reorganized, with twelve county societies. They had made progress in legislating for reciprocity with other state societies. They had recently secured a commission to investigate tuberculosis. Dr. Young of New Hampshire spoke of the successful meeting which their society had recently held. Their last legislature passed a bill for a free home for consumptives, but the governor vetoed the bill.

Dr. Wm. J. Burge presented an old picture of Dr. Isaac Senter, which he had found in Wickford on the wall in the old Shaw Homestead. Dr. Hersey, in his annual address,[1] spoke of Dr. Isaac Senter as a native of colonial New Hampshire who came to Newport in early life to study medicine with Dr. Thomas Moffatt, a noted Tory and librarian of the Redwood Library from 1750 to 1753. Later Dr. Senter was surgeon in the ill-fated Arnold expedition to Quebec, where he was taken prisoner. On his release he settled in Pawtuxet and later in Newport, where he acquired a high reputation. He was the earliest writer of note among Rhode Island physicians. A portion of his valuable library has come down to us through Dr. David King, late of Newport. Dr. Burge said that Dr. Senter was his grandfather's family physician.

Dr. James L. Wheaton, Jr., of Pawtucket, read a paper entitled "Colica Mucosa and Its Treatment." An abstract of which is as follows:

Until recently it has been difficult to characterize or classify this disease. One group of writers, including Einhorn, Boas, Ebstein, and Schutz, concede the rôle of inflammatory processes in the genesis of the majority if not all of the cases of this affection.

A second group, headed by Nothnagel, believe that there are two forms of the disease, one with and one without inflammatory phenomena, and they separate the two forms, calling one enteritis membranacea and the other colica mucosa, the latter only of neurotic origin.

The third group includes V. Leube, Fleischer, Hemmeter, Van Noorden and Westpfalen. The last says that the majority of cases which are accompanied by the formation of membrane are in reality secretory neuroses of the bowels. The neurosis is made responsible for the production of excessive quantities of mucus.

The mucus excreted may assume different types, loose, glairy, drier or intermediary transitions, depending upon its length of stay in the intestines. The mucus, however, is very tenacious, and in this differs from the ordinary intestinal mucus.

The etiology is a matter of various opinions. The majority of cases occur between the twentieth and forty-fifth year, and in women. All show more or less extensive neurotic or hysterical stigmata.

In almost every case the patient lives on a restricted diet and is underfed. The majority are dyspeptic or constipated. As a rule, preceding the development of the disease, the patient has been obstinately constipated for weeks or months.

The two cardinal symptoms are paroxysmal attacks of pain and the passage of smaller or larger quantities of mucus.

In treatment we consider the attack itself and its causes. For the former a narcotic and high injections, preceded or not by oil enemata, are indicated.

For the second, instead of restricted diet, it has been found best to give a very coarse diet, such as bread with a large proportion of husks, vegetables containing much cellulose, fruits with small seeds, besides large quantities of fat. This, with an occasional high enema of oil, will cure most cases and, in addition, many of the nervous phenomena.

[1] Transactions, vol. vi, p. 166.

Dr. W. Frank Morrison, of Providence, presented a paper upon, "The Harmfulness of Overeating." He said in part:

"There are great societies for the encouragement of public sentiment and of legislation opposed to alcoholic intemperance, but little is said of intemperance in eating. Only a few religious societies demand moderation in eating, and yet, while we are surprised at the endurance of these people and their capacity for work, and while we admire their fresh complexions and the placidity of their lives, they have few followers. The poor man takes pride in furnishing his family with a diet of rich and expensive articles of food, and he imagines that he is inciting them to greater health and strength.

"The amount of food eaten by the ordinary person in a day is much more than is needed."

Dr. Morrison closed his paper by saying that he thought that the treatment of people suffering from overnourishment was a matter of close observation on the part of the physician.

Dr. Wm. R. White, the president, delivered the annual address on "Some Phases of Medico-Sociology."

Dr. White closed his paper by referring to the change in the government of the society, saying: "With larger fellowship our strength and influence in our own cities and state will be recognized, and our power in matters that rationally concern us will be increased. Under the new plan much responsibility will fall on certain officers of the local societies, and you who are members of them, being loyal and true to this society and to your profession, will see to it that the right men are elected to office. To me the future of your society looks most encouraging. Remembering the good work of the past, I foresee more and better work. All that is necessary is interest and co-operation. If you older men will draw from your years of experience and observation; if you of middle age will give us the benefit of your large clinical opportunities in hospital and private practice, reporting your rare and interesting cases; if you younger men will tell us of the new things you have recently been taught in the splendid medical schools of the period; if you country doctors will tell us how you, single-handed, cope successfully with emergencies that in the city would mean from one to four consultants; if you women physicians will bring reports from your field of labor and show us men some better ways than those we fancy are the best; if you specialists will impart to us as much as you can afford to, or as you think it proper for us to know, and through us add to public safety and intelligence; if you health officials, medical examiners and school inspectors will keep in touch with us; if you who are in charge of our hospitals and institutions will inform us as to current progress in your lines of work; if, especially, you laboratory experts will report on latest discoveries that bear on diagnosis and treatment; then, I say, will the Rhode Island Medical Society show stronger reasons for its existence and support."

At the dinner which followed, Dr. Chas. V. Chapin was anniversary chairman. The speakers were the mayor, Augustus S. Miller, Prof. Wm. C. Poland of Brown University and Dr. C. V. Chapin.

Dr. Chapin, in closing the dinner exercises, said that while the specialist of modern times is a valuable member of the medical fraternity, and his great knowledge is at times almost indispensable, he hoped the time would never come when the general practitioner, who knows something about every branch of the science, would become extinct. The meeting was then declared adjourned.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, AUGUST 11, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

WORK AS A THERAPEUTIC MEASURE.

AMONG the many rational therapeutic measures which have been advocated of late years, small attention has been paid to the efficacy of work. Rest, exercise, massage, electricity, hydrotherapy, vibration and many other means of treatment have been tried with much enthusiasm by various persons within and without the profession. Of these, perhaps none has had so enthusiastic a following as the so-called rest treatment, introduced in systematic form by Dr. Weir Mitchell, and practised indiscriminately ever since. That the rest treatment is useful and has again and again demonstrated its usefulness in appropriate cases, we make no question. That it has been peculiarly misused is likewise not open to doubt. We venture to say, with small expectation of contradiction, that the rest cure, so-called, has been far more satisfactory in the hands of its founder than in the hands of others, however conscientiously they may have attempted to carry out the lesson which he taught. As a matter of fact, all experience goes to show that our enthusiasms in many methods of treatment often get the better of our judgment, and that discrimination is easily lost in our effort to better a difficult condition. That this undue enthusiasm is, however, a valuable, although unacknowledged, factor of the treatment must also be admitted, and with enthusiasm as such we must certainly have no quarrel.

In view, however, of all the time and attention which has been given to treatment by so-called rational methods, it is somewhat extraordinary that no systematic attempt has been made to systematize a method of treatment which shall have work, either physical or mental, as its fundamental principle. Of course, we recognize the fact that physicians are continually advising exercise, and often physical labor of a more or less definite sort, but so far as our knowledge goes, with the possible exception of Moebius, no one has mapped out a work cure in the same systematic fashion as a rest cure, for example, has been developed. We are so accustomed to consider our patients as individuals of lowered physical and mental vitality that we frequently overlook the fact that their appearance of invalidism is due to quite other causes than those for which rest and recreation could work a cure. It becomes increasingly apparent, as one's attention is directed to the matter, that overwork, as the term is popularly used, means almost nothing. It is the rarest possible experience to come in contact with a person who is really suffering from overwork as such. His hours may be long, his work may be uncongenial, and his physical strength insufficient to meet the demands placed upon it, but to generalize and say that overwork, as such, is the cause of the innumerable nervous breakdowns which are everywhere about us is no longer to be maintained. Our conviction is growing, on the other hand, that the lack of proper employment is rather the source of the various failures which are familiar to every physician. That such employment of the mind and also of the body is conducive to health cannot be questioned, and we are inclined to think that if physicians insisted upon the necessity of work with anything like the frequency that they insist upon the necessity of rest, in dealing with the so-called neurasthenic invalid, they would accomplish far more definite results. If it be true that overwork is rare, and that the moral and physical stimulus which work gives is desirable, it may hardly be questioned that a systematic treatment by work is as rational as a systematic treatment by any other means. If we could realize that many of the ills of life are due to perversions of natural processes rather than to fundamental defects, the rationality of a plan of work as opposed to a plan of recreation or rest or anything else would forthwith become apparent. We await with confidence the formulation of such a method of treatment, which shall have for its aim a building up of temporarily disordered functions through systematic effort and employment. This tendency in sporadic form we see about us everywhere, but its systematic application as a legitimate and useful therapeutic measure seems not yet to have been attained.

HEALTH AND MEDICAL LEGISLATION OF 1904 IN MASSACHUSETTS.

No session of the General Court for several years has been so barren in its results, so far as health and medical legislation is concerned, as that of the present year; and yet an abundant grist of material was introduced for discussion before several committees, in which both medical men and health officers showed an active interest. Among the topics presented in the shape of bills and petitions were the following:

To protect animals from scientific cruelty, House 174 (this bill met with its usual fate); to license barbers, House 378; to prevent premature burial (an absurd and chimerical scheme, already referred to in the JOURNAL); to prohibit fraudulent advertisement of medicines; to prohibit expectoration in public places; to revise the plumbing laws; to prohibit sales of food and drink containing deleterious substances; to prohibit the sale of cigarettes by other than licensed persons; to promote public health in theatres and places of amusement; to regulate the taking of ice; to prohibit the use of boracic acid and salicylic acid in preserving food products; for legislation on pollution of water supplies; on the registration of nurses; to regulate undertaking and embalming; for better examination of bodies before embalming; for labeling canned goods; two bills to regulate the sale of baking powders; to regulate the sale of face bleaches; to state on packages the ingredients of patent medicine; on the adulteration of vinegar; on the sale and giving away of opium; to prohibit the use of aniline dyes in food; that dog licenses may contain rules for the prevention of hydrophobia; on the powers of local boards of health; to prohibit the use of cellars and basements for bakeries.

Out of all this proposed legislation, only two or three measures were finally enacted and placed among the laws of the Commonwealth.

One of these laws (Chapter 395) gives the State Board of Charity power to remove any person "infected with a disease dangerous to the public health, and who is maintained or liable to be maintained by the Commonwealth, to any hospital provided for state paupers, or they may provide such place of reception for such person as is judged best for his accommodation, and the safety of the public."

The emergency which gave rise to this legislation was the discovery of a case of leprosy in the town of Harwich.

Another act (Chapter 445) requires the approval by the State Board of Health together with certain other authorities of the plans for the construction of a dam across the Mystic River in Medford, and also directs the Board to report to the next General Court a method for purifying the Mystic River, Alewife Brook and adjacent water courses.

Two resolves were also enacted. One of these provided for an investigation by the State Board of Health as to the business of undertaking and embalming, and the other for an investigation as to sanitary and other conditions affecting the health or safety of employees in factories and other establishments.

SHELLFISH IN POLLUTED WATERS.

CONSIDERABLE discussion has arisen within the last few years regarding the possibility of infection from contaminated shellfish taken in the neighborhood of sewage outlets. The matter has been discussed and studied at considerable length in England, with the result that a definite contamination of oysters has been demonstrated, making them a menace to health. In this state the legislature has also taken action, as the following excerpts from the revised laws show:

SECTION 113. The state board of health may examine all complaints which may be brought to its notice relative to the contamination of tidal waters and flats in this commonwealth by sewage or other causes, may determine, as nearly as may be, the bounds of such contamination, and, if necessary, mark such bounds. It may also, in writing, request the commissioners on fisheries and game to prohibit the taking from such contaminated waters and flats of any oysters, clams, quahaugs and scallops. Upon receipt of such request, said commissioners shall prohibit the taking of such shellfish from such contaminated waters or flats for such period of time as the state board of health may prescribe.

SECTION 114. Whoever takes any oysters, clams, quahaugs or scallops from tidal waters or flats from which the taking has been prohibited as provided in the preceding section shall forfeit not less than five nor more than ten dollars for the first offence, and not less than fifty nor more than one hundred dollars for each subsequent offence; but such penalties shall not be incurred until one week after the commissioners on fisheries and game shall have caused notice of such prohibition, with a description, or the bounds, of tidal waters or flats to which such prohibition applies, to be published in a newspaper published in the town or county in which or adjacent to which the tidal waters or flats to which such prohibition applies are situated.

These laws were passed in 1901, and it is under their authority that the State Board of Health has recently made an investigation of the condi-

tions existing in New Bedford, Mass., harbor. This investigation, which was prompted by the suggestion of the New Bedford Board of Health, has disclosed the fact that shellfish from the waters of certain parts of New Bedford harbor are infected. The State Board of Health has taken action prohibiting the taking of shellfish from these parts of the harbor, or from any place within three quarters of a mile of the outlet of any city sewer.

There can be no question whatsoever of the wisdom of such action, stringent as it may at first appear to be. As we have already suggested, the evidence is rapidly accumulating to show that infected shellfish are a very serious menace to public health, and that through their agency, disease, notably typhoid fever, may be spread to an alarming degree. The avoidance of this danger naturally lies in the closest possible inspection of oyster beds and other collections of shellfish used for food wherever there is a possibility of contamination through sewage. Were this done, and we have no doubt it will be done, this menace to the public health would quickly be eliminated. We are glad, therefore, to call attention to the action already taken with regard to New Bedford harbor.

MEDICAL NOTES.

CHICAGO AS A HEALTH RESORT. — According to the weekly bulletin of the Chicago Health Department, it is again insisted that Chicago is the most healthful large city on earth. It is especially the best city in which to be born, as witnessed by certain figures of the number of deaths under five years. In 1894 the proportion of deaths under five to the total number of deaths was 46.1%, whereas in 1903 it was but 28.6%. The figures show a decrease of 37.9% in the child mortality in the last decade, and for the first six months of the current year the proportion of deaths under five to the total deaths was only 24.01%, or nearly 50% lower than in 1894.

HONORS TO PHYSICIANS. — On July 16 a monument in memory of Pasteur was unveiled in Paris by President Loubet. The unveiling was attended by Mme. Pasteur and by various representatives of the government and of abstract science. It is reported that a prize in honor of Adolf Kussmaul has been founded by Professor Czerny, his son-in-law. It is intended to award the income of $2,500 every third year for the best work on therapeutics published in German during the preceding three years. Dr. Otto Kahler, formerly professor of medicine at Vienna, has been honored by the unveiling of a bust at the school of medicine.

ROCKEFELLER INSTITUTE PLANS. — According to the *Medical News* plans have been filed for the new laboratory building in New York to be erected on Exterior Street, east of Avenue A, for the Rockefeller Institute of Medical Research, of which Dr. William H. Welch, of Johns Hopkins University, is president, and Dr. S. Flexner, Resident Director. It is to be a five-story edifice, 136 x 60, with a facade of limestone and brick. It will be decorated with pilasters of brick, and have a porch entrance flanked with decorative columns for the support of the electric lights. The first floor will be an assembly hall, with a library and study and directors' room. The upper floors will contain large general and special laboratories and research rooms. The fifth will have a dining hall and living quarters, and the roof a special operating room and quarters for the animals under examination. Adjoining the main building will be a two-story building for the animals used by the doctors, and power house. The cost of the buildings is estimated at $325,000.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Aug. 10, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 48, scarlatina 11, typhoid fever 28, measles 9, smallpox 0.

ADDITION TO BROCKTON, MASS., HOSPITAL. — It is announced that the Brockton Hospital is to have an addition at a cost of $20,000, to be devoted particularly to surgery.

BOSTON MORTALITY STATISTICS. — The deaths from diarrheal diseases and tuberculosis have been comparatively high owing to the hot weather. The total number of deaths reported to the Board of Health for the week ending Aug. 6 were 250, as against 170 the corresponding week last year, showing an increase of 80 deaths and making the death-rate for the week 21.15. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 28 cases, 1 death; scarlatina, 8 cases, no deaths; typhoid fever, 26 cases, 5 deaths; measles, 17 cases, 1 death; tuberculosis, 49 cases, 25 deaths; smallpox, no cases, no deaths. The deaths from pneumonia were 16, whooping cough none, heart disease 23, bronchitis 2, marasmus 9, cholera infantum 21. There were 9 deaths from violent causes. The number

of children who died under one year was 83; under five years, 107; persons over sixty, 39; deaths in public institutions, 82.

NEW YORK.

Pathological Laboratories at Bellevue Hospital. — The announcement is made that Dr. Charles Norris of New York has received the appointment of director of the pathological laboratories of Bellevue Hospital, the appointment dating from Oct. 1, 1904.

Resignation of Dr. George F. Shrady.—The *Medical Record* of Aug. 6 announces the resignation of Dr. George F. Shrady from the editorship of the journal after a service of nearly forty years. Dr. Shrady has had editorial control of this journal from its foundation, thirty-eight years ago. Dr. Thomas L. Stedman, for many years associated with Dr. Shrady in the editorial work, now becomes editor.

Appropriations. — Urged on by an emergency message from Mayor McClellan, the Board of Aldermen on July 26 passed resolutions of the Board of Estimate and Apportionment, appropriating $5,500,000 for the Department of Education, in order that the work of the department may be continued without interruption. The mayor's letter requested the immediate passage of the resolutions because of the insufficiency of school accommodations in the city, not only in the matter of sites, but also in recreation centers, vacation schools and playgrounds, lighting facilities, and the equipment of kindergartens, cooking schools, workshops, etc. "The very apparent necessity of doing all in our power," he said, "to remedy the school situation with which we are confronted makes it unnecessary for me to impress on you further the obligations we are all under of putting at the disposition of the Board of Education the funds represented by these several appropriations." Among the other appropriations passed the same day were the following: $243,000 for the Department of Health; $100,000 for cleaning the sewers in the Borough of Manhattan; $67,000 for a new boat to run to the hospital for contagious diseases on North Brother Island, and $3,000 for the School of Agriculture in DeWitt Clinton Park.

June Mortality in New York State. — The bulletin of the State Department of Health shows that the number of deaths reported in the state during the month of June was 10,997. This is about 1,500 in excess of the average for the month in the past five years, June being uniformly in New York the month of the lowest mortality, with the exception of November. This increase in the mortality is stated to be in great part due to the marked increase in the deaths reported by New York City, which returns 1,362 deaths from accident. A large part of these was, of course, caused by the "Slocum" disaster. Of epidemic diseases, the only increase in mortality is from cerebrospinal meningitis, which became epidemic in New York City in March and reached its height in May, the deaths from it in June being about the same number as in April. Pulmonary tuberculosis caused an excessive mortality for the month of June, and this was general throughout the state. There were almost as many deaths from it as in May, and 150 more than in June, 1903. The prevalence of influenza and its allied or resultant affections, which characterized the disease movements earlier in the year, have, so far as reports of it as a principal or contributing cause of death are concerned, been largely abated. It is evident, however, the bulletin states, that its consequences have continued, and the increase in tuberculosis is attributed to it. Deaths from pneumonia and other acute respiratory diseases which more immediately accompany influenza, and which had been very high since January, were less than half as many as in the month of May.

Reunion of Incubator Babies. — There was recently held at Coney Island a reunion of incubator "graduates," where no less than forty healthy infants and young children were present. Notable among them were the Cohen triplets, who were born in a New York tenement house in July, 1901, weighing together at the time only as much as one baby of ordinary size, and who, during the rest of the summer, attracted much attention at the Pan-American Exposition in Buffalo. Dr. Edward Wallace Lee of New York, who with Dr. M. A. Couney of Berlin, the inventor of the incubators employed, installed the system first at the Omaha Exposition in 1897, gave some interesting statistics. He stated that whereas about 97% of the class of infants now reared in incubators formerly died, there had been lost but six out of 56 incubator babies at the Pan-American Exposition, four out of 32 at Coney Island in the summer of 1903, and three out of 38 during the present season. In this year's incubator colony at Coney Island there are three sets of twins and one of triplets.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 30, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from: Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Diarrheal Diseases.
New York	3,908,644	1,520	709	45.00	5.72	1.58	.85	28.02
Chicago	2,021,088	450	164	34.44	6.89	.88	2.00	21.55
Philadelphia	1,407,968	434	178	39.59	5.52	.46	2.07	24.17
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	542,229	238	105	41.60	3.78	.84	2.52	27.73
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	409,645	—	—	—	—	—	—	—
Pittsburg	362,403	121	—	44.62	5.78	—	8.26	27.27
Cincinnati	338,277	—	—	—	—	—	—	—
Milwaukee	325,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	73	33	36.99	8.22	—	—	28.77
Boston	617,950	207	76	36.23	6.28	1.93	.98	21.74
Worcester	136,925	31	16	22.58	6.45	—	—	22.58
Fall River	119,349	64	48	68.72	6.24	.62	—	58.79
Lowell	104,402	53	34	37.74	9.45	—	1.89	24.65
Cambridge*	100,998	16	9	62.50	—	—	—	56.00
Lynn	73,875	28	12	32.13	3.21	3.21	—	14.28
Lawrence	72,348	29	15	51.72	6.89	—	—	44.82
Springfield	72,020	35	10	31.43	—	2.86	—	17.14
Somerville	70,413	16	7	25.00	12.50	—	—	18.75
New Bedford	68,863	35	25	60.00	8.56	—	—	51.42
Holyoke	50,538	18	13	50.00	5.55	—	—	50.00
Brockton	46,001	19	7	10.56	—	5.26	—	—
Newton	39,310	6	2	16.67	16.67	—	—	16.67
Haverhill	39,061	7	1	14.30	14.30	—	—	14.30
Malden	37,205	6	5	33.33	16.67	—	—	33.33
Salem	37,188	24	15	58.32	—	—	—	50.00
Chelsea	36,499	12	9	16.67	—	8.33	—	—
Fitchburg	36,335	—	—	—	—	—	—	—
Taunton	34,577	9	1	33.33	—	—	—	22.22
Everett	30,209	7	4	—	—	—	—	—
North Adams	29,201	8	3	37.50	—	—	—	37.50
Quincy	26,798	8	2	25.00	—	—	—	25.00
Gloucester	26,121	—	—	—	—	—	—	—
Waltham	25,797	6	1	33.33	—	—	—	16.67
Brookline	23,576	4	2	—	—	—	—	—
Pittsfield	22,870	13	3	23.10	15.40	—	—	15.40
Medford	21,956	8	6	37.50	12.50	—	—	37.50
Chicopee	21,692	6	3	33.33	—	—	—	16.67
Northampton	20,314	3	3	33.33	33.33	—	—	33.33
Beverly	15,807	3	—	—	—	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	2	1	—	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,500	—	—	—	—	—	—	—
Newburyport	14,478	2	0	—	—	—	—	—
Woburn	14,315	3	2	66.67	—	—	—	66.67
Melrose	13,819	3	1	66.67	—	—	—	—
Westfield	13,809	3	—	33.33	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	2	0	50.00	—	—	—	—
Revere	13,609	1	—	—	—	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody	13,406	—	—	—	—	—	—	—
Gardner	12,324	2	—	—	—	—	—	—
Southbridge	11,718	5	3	60.00	—	—	—	60.00
Watertown	11,575	5	3	40.00	—	—	—	40.00
Weymouth	11,350	1	0	—	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,546; under five years of age, 1,531; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,468; acute lung diseases 204, consumption 345, scarlet fever 14, whooping cough 14, cerebrospinal meningitis 31, smallpox —, erysipelas 3, puerperal fever 5, measles 16, typhoid fever 50, diarrheal diseases 949, diphtheria and croup 41.

From whooping cough, New York 3, Chicago 5, Philadelphia 2, Pittsburg 2, Boston 1, Melrose 1. From measles, New York 8, Chicago 1, Philadelphia 3, Boston 2, Lowell 1, Chelsea 1. From scarlet fever New York 8, Chicago 2, Baltimore 2, Pittsburg 1, Lowell 1. From cerebrospinal meningitis, New York 25, Boston 3, Lynn 2, Marlborough 1. From erysipelas, New York 2, Taunton 1. From typhoid fever, New York 13, Chicago 9, Philadelphia 9, Baltimore 6, Pittsburg 10, Boston 2, Lowell 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending July 16, the death-rate was 13.7. Deaths reported 4,019; acute diseases of the respiratory organs (London) 62, whooping cough 92, diphtheria 37, measles 142, smallpox 5, scarlet fever 28.

The death-rate ranged from 4.8 in Bournemouth, to 26.2 in Bootle; London 12.9, West Ham 12.7, Brighton 13.6, Southampton 13.4, Plymouth 16.0, Bristol 11.5, Leicester 10.5, Nottingham 13.6, Liverpool 19.6, Bolton 8.9, Manchester 16.4, Salford 18.7, Bradford 15.2, Leeds 14.8, Hull 15.6, Sheffield 14.0, Cardiff 12.1, Rhondda 21.3, Wigan 14.1, Merthyr Tydfil 17.2, Hornsey 5.8, Huddersfield 22.5.

METEOROLOGICAL RECORD.

For the week ending July 30, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A.M.	Relative humidity. 8.00 P.M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A.M.	Direction of wind. 8.00 P.M.	Velocity of wind. 8.00 A.M.	Velocity of wind. 8.00 P.M.	We'th'r * 8.00 A.M.	We'th'r * 8.00 P.M.	Rainfall in inches.
S. 24	30.10	61	63	59	89	94	92	N	E	8	7	R.	R.	.05
M. 25	30.14	69	78	60	100	78	89	N E	S	4	8	R.	C.	.02
T. 26	30.18	74	84	64	95	70	78	S	E	S	7	10	O.	C.	0
W. 27	30.11	76	83	70	86	76	81	S	W	S	W	10	10	F.	C.	.11
T. 28	30.08	75	85	65	82	80	81	S	W	S	W	7	8	F.	F.	0
F. 29	29.99	72	81	64	84	50	67	S	W	W		10	10	R.	C.	.06
S. 30	30.15	68	77	59	51	56	54	N	W	S	W	8	12	F.	O.	0
☞	30.11		79	63			77									.24

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING AUGUST 4, 1904.

PURVIANCE, GEO., assistant surgeon general. Granted extension of leave of absence from June 20 to June 30, inclusive. July 30, 1904.

BANKS, C. E., surgeon. Granted leave of absence for one month and fifteen days from August 12. July 29, 1904.

SPRAGUE, E. K., passed assistant surgeon. To report to Surgeon G. W. Stoner, Immigration Depot, New York, for duty. July 29, 1904.

GREENE, J. B., passed assistant surgeon. Upon the return of Assistant Surgeon H. McG. Robertson, relieved from duty at New York (Stapleton) and directed to proceed to Fort Stanton as inspector of unserviceable property. Upon completion of this duty to remain at Fort Stanton and await further orders. July 30, 1904.

LAVINDER, C. H., passed assistant surgeon. Relieved from duty at Delaware Breakwater Quarantine, and directed to proceed to New York (Stapleton) and report to medical officer in command for duty and assignment to quarters. August 1, 1904.

FOSTER, M. H., passed assistant surgeon. Granted leave of absence for fourteen days. August 4, 1904.

TROTTER, F. E., assistant surgeon. Granted leave of absence for ten days from August 5. August 4, 1904.

BAHRENBURG, L. P. H., assistant surgeon. To assume command of service at Delaware Breakwater Quarantine, relieving Passed Assistant Surgeon C. H. Lavinder. August 1, 1904.

SALMON, T. W., assistant surgeon. Granted leave of absence for seven days from August 2, 1904, under paragraph 191 of the regulations.

PORTER, J. Y., sanitary inspector. To proceed to Havana, Cuba, for special temporary duty, and to inspect the disinfecting steamer "Sanator." July 27, 1904.

BRICE, J. W., acting assistant surgeon. Granted leave of absence for thirty days from September 20. July 29, 1904.

FOSTER, J. P. C., acting assistant surgeon. Granted leave of absence for thirty days from August 1. August 1, 1904.

STUART, A. F., acting assistant surgeon. Department letter of June 22, granting Acting Assistant Surgeon Stuart leave of absence for thirty days from July 1, amended to read twenty-one days. August 1, 1904.

ROGERS, EDWARD, pharmacist. Granted leave of absence for sixteen days from August 5. July 28, 1904.

TROXLER, R. F., pharmacist. Granted leave of absence for thirty days from September 5. August 1, 1904.

NEVES, GEO., pharmacist. Granted leave of absence for thirty days from August 27. August 1, 1904.

BOARD CONVENED.

Board convened to meet at Port Townsend, Washington, D.C., for the physical examination of candidates for second assistant engineer in the Revenue Cutter Service. Detail for the board: Passed Assistant Surgeon J. H. Oakley, Chairman. Acting Assistant Surgeon W. E. Patrie, Recorder.

PROMOTIONS.

T. B. MCCLINTIC, JOSEPH GOLDBERGER and W. A. KORN, assistant surgeons. Commissioned (recess) as passed assistant surgeons to rank as such from July 28, July 27 and July 27, 1904, respectively. July 27, 1904.

Original Articles.

MIND CURES FROM THE STANDPOINT OF THE GENERAL PRACTITIONER.*

BY ROBERT T. EDES, M.D., READING.

If one wished to ascertain the general trend of opinion in the community relative to the progress of medicine in recent years, and with this object in view were to glance over the table of contents of a large number of medical journals from cover to cover, he might infer that leaving out surgery and obstetrics there was a sort of polarization going on in which one set of opinions grouped themselves around mental, psychical, and even miracle cures, as represented by all sorts of 'pathies, 'ologies and sects, religious and otherwise, and at the other extreme around a condition of polypharmacy such as the world has never before seen; where if we believe half of what we read on one side the wonder is that any one dies, if at all, before he reaches one hundred; or, if we believe another set of writers, that any one ever lives to grow up.

It may seem absurd, or at least disrespectful, to suppose that The Massachusetts Medical Society goes to either of these extremes. As a matter of fact I don't think it does,— not as a society,— but a little experience showed me that one of these poles is not without its attractions for some of the members, and it is not an unfair inference that the other is drawing to itself some adherents by the fact that such a subject as that upon which I have been asked to say a few words finds a place upon the programme.

I had occasion to send to a good many of the Fellows some years ago a circular letter of inquiry as to the drugs which it was thought desirable to reject as useless from the U. S. Pharmacopeia, and what should be added. I received some answers somewhat as follows: "What is the use of putting in a lot of trash such as is now there? Give us something practical and useful."

Then would follow a list in which the influence chiefly to be noticed was evidently the latest advertising pages in the Journals. When one looks over pharmacopeias and works on therapeutics (and by the way I know of little more instructive reading on the subject than Stillé's "Materia Medica" compiled when the learned author was a young man, studied side by side with the last edition of the "American Dispensatory" of which the therapeutic part was written by the same author after many years of evidently well digested experience), and if he notes the changing lists of drugs which have, many of them, been vaunted just as highly and on apparently the same basis as those now produced in such bewildering rapidity by the coal-tar chemists, and when he recalls the varied and often contradictory theories which have controlled the practice of medicine, many of them being, according to our present knowledge of pathology, absolutely groundless, he is obliged to acknowledge the vigor of the *vis medicatrix naturæ*.

But when we find that in spite of mistakes and contradictions, which the critics and satirists are not slow to perceive nor reluctant to remind us of, that the physician is still sought for in sickness as a helper and not merely as a sort of sanitary adviser, in order to promote recovery or at least to witness it, we have evidently to reckon with some kind of constant and permanent usefulness which has comparatively little to do with therapeutics as laid down in books, but which has been a part of the physician's *armentarium* ever since there were physicians.

This moral support or encouragement, the relief from responsibility, the substitution of decision for doubt, even a masterly inactivity when there are no active steps to be taken, has long been recognized by the laity and by those literateurs who are fond of doctors but not of drugs, although it is apt to be somewhat slightingly spoken of by those who want something to be done promptly.

We are all familiar with the story, which I presume continues to go down from one generation to the next, and which in one form or another is told to us by gentlemen of other professions who wish to pat us physicians on the back on public occasions, of the doctor's smile which was supposed to be worth so many hundreds or thousands per annum, according to the social stratum to which he administered. The market for this commodity, however, varies greatly. While a lady fatigued with what she is pleased to term her social duties may be very willing to pay quite a liberal fee for his smile to the fashionable practitioner who "does not believe in drugging," which is the proper name to apply to the administration of all medicines except those which *you* happen to fancy, and which does *not* exclude in the case supposed "just a little sleeping powder" or "just an occasional nerve tonic," there are others who begrudge even a small one for the moral support of an equally competent physician unless they get something with it which they can taste or feel. But this sort of comfort is hardly therapeutics in the strict sense, and it certainly does not work wonderful cures. If there are any, they are discounted in advance and supposed to be in the ordinary way of business, unless perhaps they find commendation in the doctor's obituary.

Considering the very prominent position which psychic treatment in one form or another occupies in the public mind and the extravagant claims made for it, and hence its necessary importance in the professional consciousness, it is worth while to consider what morbid processes can be beneficially affected by mental action. Of course we do not expect or admit any influence of outside or foreign mind or spirit or nerve function upon the bodily processes of any patient except through that patient's own mind or emotions. If any such be possible it is the nature of a miracle and does not come within the scope of human physiology.

*Read before The Massachusetts Medical Society, June 8, 1904.

"Christian Science" is so far correct that it refers its therapeutic action to the mind of the patient, stimulated of course by its meaningless phraseology and fantastic doctrines, which to a certain kind of intelligence appeal so much more strongly than either scientific reasoning or old-fashioned Christianity.

In an extremely philosophical and suggestive work ("Anglo-Saxons and Others," by Aline Gorren), which I saw for the first time after this paper was written and in part read, I find so excellent a statement of the mental attitude of a large part of our community that I cannot forbear quoting it:

> The habit of action and attention to the realities have drawn away the mind from the field where the highest criticism of life is achieved, and the mental processes which such criticism calls into play are stiff from disuse. Human reason was told to act, to test all things for itself, to take no one's word for it, at the Reformation. But as a stimulant to its activity in the realms of abstract thought the Reformation was a failure. M. Guizot but observed what many others have seen when he wrote that in all Reformed countries something was lacking to the perfect organization of intellectual society, and to the free circulation of general ideas.
>
> And here, by the way, is to be found the cause of all that vague, inconsequent, metaphysical yearning which, with apparent contradiction, runs like a vein in a rock up through the solid unspeculativeness of the Saxon nature. Nowhere are there so many persons of sound intelligence in all practical affairs so easily led to follow after crazy seers and seeresses, and after new "psychic" doctrines of every known and unknown degree of wildness, as in England and the United States. The tenets of the Russian religious sects are at least free from the pseudo-scientific pretensions which constitute the chief absurdity of American and English metaphysical churches, healing societies, and the like.
>
> The truth is that the mind of man refuses to be shut out absolutely from the world of the higher abstractions, and that, if it may not make its way thither under proper guidance, it will set off even at the tail of the first ragged street procession that passes. If no habit has formed of making discriminations, of separating the genuine from the false, there will be sad mistakes made, evidently. And we shall continue to see business men not to be "taken" in by the sharpest in the management of their daily interests, not to be deceived in the quality of any material goods offered to them, sitting, ingenuous and receptive, under the jargon of some foolish woman with claim to a newly revealed cure for all the ills of the body and the soul.
>
> And the upshot? — In the aggregate, with all his lack of critical faculty, no harm comes to this order of man. His brain, as to the abstractions, is never clear, is always in a fog; but he works, and he fights if need be, and he goes on without ceasing in the thing which he has undertaken and he succeeds. He succeeds because he never questions that he is right all through, and takes much of his proof on faith.
>
> Who cannot feel the power that goes out from such a mental stand as this? A rationalistic, modern Frenchman, debating his motives, cynical as to his virtues, philosophizing his own errors, doubts and is lost.
>
> This newer type of man does not debate, is by no means doubtful of his own virtue, and never philosophizes, not finding it easy work. And he is invulnerable, and everything goes down before him.
>
> That trait of his which is called hypocrisy, but which is not hypocrisy, only a confusion of ideas and feelings, is the direct cause of one half of his impressiveness. The day on which he loses it will be a day of disaster.

What are the real physiological or pathological processes over which mental action, intellectual or emotional, can be supposed to have any effect?

There are certain ones covering a very wide field in the ordinary practice of medicine in which there is no satisfactory evidence of any such direct influence at all.

Fever, which is so important an element in pathology, especially of acute diseases, and a very large number of chronic infectious ones, is apparently uninfluenced. In the novel, to be sure, the mother, or the very old and wise physician, or the good "sister," or the pretty nurse, lays her hand upon the heated brow of the hero and his fever subsides. The so-called "fever of excitement," or "anger," over-excitement of any kind, may undoubtedly be controlled by reason, but there is not the least ground for supposing that the pyrexia of the pathologist, marked by a rise of temperature, an increased secretion of solids, and usually dependent upon a more rapid metamorphosis of tissue, is influenced in any important way by mental action, except so far as rest promotes and excitement hinders the normal processes of defervescence.

And yet in its early stages fever is to a large extent an affair of nerves. It can be reduced by baths and by various drugs. Why not by the determination of the patient or the spell of the faith curist? Simply because it is not. Over many processes of nutrition there is little influence for the worse and none at all for the better. Diabetes apparently sometimes takes its origin in shock, but the mischief once done is not to be undone by finding that the cause of the shock was an imaginary one.

Secondary anemia sometimes seems very amenable to psychic influences, but probably rather in an indirect than a direct way.

Idiopathic anemia, on the other hand, furnishes about as conclusive an illustration of the uselessness of an apparently well-founded encouragement as could well be.

What could apparently be more calculated to promote a cure, if a rational conviction of its possibility and actual presence could do such a thing, than the improvement in strength, in color, in well being, all sustained by the careful examinations of the physician who finds by his blood-count increasing amounts of red blood and disappearing abnormal forms; all but one of which the patient need know neither the presence nor the significance. And yet how fallacious! If well-grounded and reasonable expectations, seemingly almost realized, cannot cure, why should unreasoning and ignorant hope do so?

It was a remark of the older clinicians, that the mental condition of patients with disease above the diaphragm is much more cheerful

than that with disease in the abdominal viscera. If this disposition had a saving virtue, then pulmonary tuberculosis and valvular disease of the heart ought to be much more susceptible of cure than acidity of the stomach or constipation.

The value, importance and efficacy, as an adjuvant, of psychic influence in such cases is not to be denied, and no one would be inclined to minify it either in theory or practice, but it is most certainly not a direct one. It acts by encouraging the patient to persevere in such more positive measures as may be necessary in the particular case. It has been wisely remarked that it is possible for a patient to be too much encouraged, so that he is not willing and anxious, as he ought to be, to take the measures which are of the utmost importance for his recovery. The precise proportion in which hope and fear may be most advantageously combined is a matter for consideration in each case for itself.

No alienist would consider the "*delire des grandeurs*" of the paretic, in which he is convinced not only of his own abounding strength and universal powers, but of his perfect health, as a favorable element in the prognosis.

It is not probable that the most persuasive teaching of any sect can for the average man and for the moment produce a greater sense of well-being or lift him, in his own estimation, to a higher plane of thought than the administration of certain narcotics. The song may say,

> "Fill the bumper fair;
> Every drop we sprinkle
> O'er the brow of care
> Smooths away a wrinkle,"

but the pathologist will be likely to suspect that the "smoothing" process may not be altogether unconnected with edema, and finds that the more frequently this psychic influence is invoked the less of a prophylactic does it become to cirrhosis of the liver and arterial and other degenerations.

I think we are justified in saying, that over infections, degenerations, slow organic processes not dependent in any way upon mental activity, such as are those very largely which control the duration of life, the general health and the vigor of the constitution, direct psychic influences are practically *nil*.

Psychic influences come in contact with organic processes to affect them through the nervous system, and in particular through the vasomotor and secretory nerves, and symptomatically not only these, but also the ordinary motor and sensitive.

The secretions are, as is a matter of common observation, largely under the influence of mental impressions and of sensation. The activity of digestion is promoted by the pleasing taste of the food, and even its anticipation, and by the congenial company at the meal, and the reverse of this is also true. Solomon said: "Better is a dinner of herbs where love is, than a stalled ox and hatred therewith."

It has undoubtedly happened to many of you to be consulted by some patient who informs you that everything he eats hurts him, except when he goes out to a big dinner. It is even possible that a few hours from now may witness on a large scale, speaking with all due respect to the committee having the banquet in charge, a similar triumph of mind over matter.

Constant attention to the processes of digestion is well known to have a disastrous effect upon its comfortable accomplishment. The weighing of food and, worse yet, the constant use of the stomach tube by the patient, are practices much to be deprecated.

The effect of mental influence upon the movements of the bowels is notorious, and it is utilized not only in the every-day practice of the physician, but in the mystic séances of the faith curist. The effect also upon the secretions of the kidneys and skin is well known, and although this is usually pathological there is no reason why it might not under some circumstances be really, as well as apparently, curative. One form of diabetes insipidus is distinctly hysterical and might very easily contribute to the triumphs of some healer if he had the good luck to succeed a physician who had made an erroneous diagnosis of dilatation of the lower urinary passages, or even of interstitial nephritis, or if he were shrewd enough to suggest such a diagnosis himself, a diagnosis whose correctness might be made very conclusive to a nervous patient.

The intimate relations between the genital functions and mental and moral conditions need only to be mentioned.

Mental influences upon many cardiac phenomena of a functional character, including attacks of palpitation, are well known.

One of the speakers yesterday spoke of his experience in examining applicants for admission to the police force where a systolic murmur present in a great many cases disappeared when the successful issue was announced. Another reported that the sight of the dinner has had more effect on the blood tension as measured by instruments of precision than did strychnia.

Albumin has been found in a great many cases of students awaiting examination.

Suppose for the sake of illustration (although the hypothesis is so wildly improbable that it is difficult to entertain it), that our colleague had been a careless or an unscrupulous diagnostician and the systolic murmur had been announced to the friends of the patients as "heart disease" and then they had been told that instead of being admitted among the elect of this city they were going to be admitted to the Kingdom of Heaven on earth. He would have gained as great a reputation among the laity for his cures of "heart disease" as he has since among his professional brethren for his skilful and courageous use of antitoxin.

We have left, as a field for psychic therapeutics, those diseases or, more correctly, those sets of symptoms, which are closely connected with mental and emotional activity through the

consciously or subconsciously active, sensitive and motor nervous system, *i. e.*, diseases which we usually call functional, which do not always involve directly the nutrition or the processes of organic life but which may easily and frequently do so indirectly, and which interfere greatly with comfort, usefulness and the normal relations of the individual to his surroundings. But even here, where we should expect, and in fact do find, the greatest and most picturesque, almost the only triumphs of psychic therapeutics, there are many and great disappointing limitations. In many forms of insanity, which are apparently most especially appropriate for such treatment, we get nothing more than a relief, perhaps great, perhaps trivial, of some symptoms which are accidentally added to the fundamental processes of the disease. But this is an apparent and not a real exception, for there is little doubt that these are dependent upon organic processes frequently of a degenerative character.

But in melancholia, or, in more modern nomenclature, the depressed phase of the manic-depressive type, it would certainly seem that if psychic therapeutics had any field of action it could call its own it would be this. Of course no one can say how many mild or incipient cases of depression which do not come within the ken of the physician may have been cut short by a diversion of some sort — a bit of travel, the encouragement of friends, a chance remark, the influence of a faith healer or a piece of good advice from a physician, or by attention to the bodily functions, especially the digestion; but it certainly comes within the observation of us all how often the encouragement is utterly futile, how the patient while freely admitting the purely subjective origin of his troubles nevertheless confesses that he is absolutely unable to look at his surroundings in a reasonable and logical way, or rather perhaps that this admittedly true way has no effect upon his depressive emotions, and we are unable by argument or exhortation to present matters to him in any such aspect as to produce the desired change of feeling. We are as inexorably obliged to await the slower processes of nature as if we were dealing with typhoid or tuberculosis.

It is seldom that the faith curist even claims to cut short such a case, but he does not for that confess a failure, for he can always represent that the patient does not give himself up to the healing influence. This is perfectly true, but it is because he cannot, and this very ability which faith or religion or magic ought to supply it is conspicuously unable to do.

If the patient could do this he would have no need of a cure, and yet here, where it seems as if a change of emotional attitude would be so easy and so naturally obtainable by purely psychic means, is the very point where it has so slight an effect.

It is hardly necessary to reiterate the admission of the great value of psychic treatment, diversion, amusements, and best of all when possible an employment in which the patient can be interested, as adjuvants and for the relief of symptoms. The point is simply this, that the psychic end of the circuit cannot be controlled powerfully enough to set the emotional current flowing in the proper direction.

After such limitations as these we find left but little except cases in which symptoms, constituting in themselves a psychic disorder, counterfeit more or less closely something of a more serious and organic character.

The different varieties under which such disorders may show themselves would require, and have indeed occupied, volumes for their description. Explanations are not satisfactory and amount to but little more than saying in one way or another that there are inhibitory influences of purely mental or psychical origin which can interrupt or confuse or disarrange the normal associations of movement and sensation, just as effectually for the time being as certain organic lesions, but they are naturally much more amenable to other psychic influences and hence to treatment of the same kind.

Accepting the usual nomenclature, and having made the exception of more clearly classified groups, we find that neurasthenia proper is not especially amenable in its essentials to psychic influences except temporarily and apparently. Their value as adjuvants, however, can hardly be over-estimated.

If there is a real deficiency of nervous force, and not a mere counterfeit of it by indolence or timidity, it can hardly be expected that it will be at once restored by any simple brief stimulation of one part of the circuit. Time is required to bring back what has been overexpended, but other conditions being favorable, the psychic stimulation is necessary to enable the elements to profit by the nutriment brought to the cell, just as the muscles, after being kept at rest, for the sake of a fractured bone or the injury of their motor centre, need exercise to bring them back to their normal force. Hysteria, that ill-defined and perplexing psychosis which has been the foundation of so much that is false and illusory in therapeutics, is undoubtedly the peculiar and favorite stamping ground of the faith curist and miracle monger; not under its own name but under those of the organic diseases which it counterfeits.

A graphic clinical picture, showing with great scientific accuracy what can and what cannot be expected and obtained from profound psychic impressions, is to be found in Zola's novel of "Lourdes," powerfully realistic though not real, depicting the sufferings, the disappointments, the commercialism, the faith uplifted and the faith destroyed and the rare miracle cures of visitors to that famous grotto.

What are the methods of psychic treatment? Is there anything special or mysterious about them? Is it necessary for the self-respecting practitioner to put on the manners of the quack or to claim that he has in his control supernatural agencies, or that he should advise his patient to give himself to the study of empty verbiage and

theories which have no meaning to the healthy mind?

I do not think these questions can be answered in every case alike. Two diagnoses are necessary — that of the disorder and that of the patient. It has been said recently by distinguished members of our profession, and by other eminent citizens, that the utmost honesty and frankness may be used in dealing with patients and that they may be told the exact truth. Both may have been correct from their point of view, but most practitioners have to deal largely with persons who are not soldiers or philosophers or saints, who are not tired of life, and above all, do not like to be told of their own weaknesses. I think the practitioner is justified in giving the patient the benefit of the doubt, when there is any, and in putting the best side of the case before him, without insisting on the other. The average man will not be comforted by being told the exact percentage of recoveries in the disease which bears the name of what he thinks he has. He needs a unanimous vote of confidence. One reason why a man with a perfectly sane and healthy mind wishes to consult a physician is that he may throw upon his shoulders the responsibility and free his own mind from all the ifs and buts which weigh heavily upon it and retard his recovery.

Even the lawyers admit that there are many cases where both sides have a certain amount of right, and that it is more important that the case should be *decided* on one side or the other than that it should be left indefinitely *undecided*, because absolute justice cannot be done to both sides.

When the physician is sure that he is dealing with a case of neuromimesis he cannot be too strong in his encouragement and exhortation, and he may then assume more of authority than comes from a simple scientific knowledge, which would very possibly be scouted by the patient. He had better fall back on his prestige and reputation and such measure of oracular mien and expression as nature may have endowed him with, and give no reasons, and, above all, not give the true name of the disease. This is an average, and not a universal, rule. There are patients who can bear to be told the truth — and nervous ones at that — but it is well to study the patient's disposition as well as his disease before you are too frank in your expressions.

But when nature kindly draws a vail before the dangers of the future, I think we have no right, for the sake of absolute scientific accuracy, to draw it aside and destroy the hope which may be the last fighting chance.

There are various ways in which treatment addressed to the patient's mind may be given, ways as different as there are patients and physicians. One practitioner cheers his patient by judicious pleasantry, another by a carefully reasoned exposition of the grounds upon which his recovery is to be confidently looked for, another by religious influence; one by hypnotism, another by non-hypnotic suggestion; one quack by the confident repetition of an absolutely unsupported and probably absurb assertion, another by absolute silence.

The methods may be various, but the essential thing is the implanting not merely in the patient's reasoning and conscious mind, but in what we call, as it seems to me somewhat inconsistently, the "sublimial consciousness"; that is, the store room of past and forgotten associations, ideas and emotions of which the patient is not at the time definitely aware, but which may be in various methods reached, the idea of recovery and health, of the unreality of the pains, of the ability to walk or to talk.

Our late associate, Dr. Russell Sturgis, used to practice a method which he considered of great value in utilizing the slighter degrees of hypnosis for diagnosis and treatment. It seemed to me that it went but little beyond inducing a specially confidential and persuadable frame of mind and completeness of recollection, so that the causes of abnormal psychical conditions became more clearly revealed and consequently more thoroughly removable.

Breuer and Freud have used a method which does not necessarily depend upon hypnotism, but upon successive séances of inquiry and upturning of the subliminal consciousness to its lowest depths.

According to their theories, hysteria is always based upon some special psychical injury at an early age, its concealment and the suppression of the appropriate motor reaction; as, for instance, in the case of an official who did not dare to resent the insult offered him by his superior, but became nervous and hysterical until he had confessed the whole matter fully and got well.

The great remedial value of a full and free confession, often perhaps of some trivial affair, is well recognized in our profession, although less formally than by the Catholic church and some others.

It is not uncommon in hearing patients relate their wonder cures, or perhaps more frequently after the stories have passed through more than one narrator, to learn that they had no faith whatever, but submitted to the treatment in order to please importunate friends, and so on.

I venture to doubt the correctness of this. I have no doubt that often when patients may be as willing as any of us to admit the foolishness of the methods pursued, they have yet a real but subconscious belief that something is to happen. In some cases the belief in something weird, uncanny, seems to be an essential point.

At to the particular doctrine taught in the various sects there is little choice, except that it should not be too repugnant to the patient's deep-seated convictions, religious or social.

A strenuous repetition of a positive assertion seems an absurd sort of method to be advanced when unsupported by any argument, proof or illustration; but if any one doubts its efficacy among a proportion of mankind large enough to have a great commercial importance, I would ask him why medicine makers find it to their great

pecuniary advantage to disfigure miles of railroad and square miles of territory with simple repetitions of the statement that "Blank's Pills cure everything," or that "Children cry for Catcher's Gambogia."

Many of the various modern mechanical means of treatment, especially those which are used in chronic nervous diseases, owe a certain part of their efficacy to the constant impression of something being done, of taking up the patient's attention while nature and time are taking their slow course. A prescription of this kind may be considered as having, like many prescriptions of drugs, a proportion of mental influence as one of its ingredients.

Electricity, for instance, is difficult to disentangle from this element of error. I recollect on one occasion in a society of neurological specialists an apostle of a peculiar form of electricity was exhibiting a new electrode, and on being rather hard pushed by the other members, not only as to the advantages of that particular form, but of electricity in general, fell back from one line of defence to another until he reached the last resort of saying that it had a very good moral effect in hysteria, which is no more than might be said of any drug in or out of the pharmacopeia, from abelmoschus to zygadenus, if administered with due solemnity, or of no drug at all.

The various kinds of active exercise have the very distinct advantage that the patient is kept from thinking of himself not only by the unusual sensations, but by being obliged to use his will in a definite direction, which is exactly what he needs to do. This is especially to be seen if the exercise consist in some employment in which he takes a real interest, and this must, of course, vary greatly with each individual patient.

The beneficial effects of certain systematic exercises in scleroses of the cord is not to be accounted for entirely on this ground. As I presume will be more fully and scientifically set forth by my successor, it is a question of readjustment, and not of restoration. The damaged tissue cannot be replaced, but other comparatively sound cells, nerves and muscles may be able, under training, to take up a part of their work and carry on the function with greater or less approach to perfection.

In how large a proportion of the ordinary work of the practitioner, beyond the cheering and encouragement that he may always offer to some extent as a contribution to his patient's comfort and happiness, is psychical treatment of consequence? According to some sects, the whole of medicine, surgery and obstetrics, although it is understood that recently in the highest circles in the latter departments the true believer is graciously permitted to seek human in addition to divine assistance and receive relief through agencies which do not act merely through the mind. According to the skeptics, only the cases of nervous and silly women.

How are we to account for the hundreds of assertions of cures obtained by all sorts of means which range from the crudest mixtures of common, perhaps inert, drugs, to the most transcendental imaginings of cultivated and intelligent persons?

If there were time, there would be an opportunity for a digression on the meaning to be attached to the words "cultivation," and "intelligence." But we may leave this aside and allow for a very liberal discount for the lie pure and simple, paid for by the advertiser to the patient perhaps, and heavily and appropriately to the journals which are willing to take such money with the same hand that does not refuse even the criminal advertisement. Then come other lies in various grades.

It would not be difficult to show by example that a person may be highly cultivated, intelligent, even with scientific talents of a high order, and yet under the influence of feelings and desires entirely uncritical and credulous.

We should then find a very considerable percentage due to imaginative but entirely honest exaggeration, by the shutting of the eyes to one set of facts and the opening them very wide to another. If time permitted I should like to describe one instance which happened to display both sides to me, which shows how the mind seeking for a miracle manages to get itself gratified.

Darwin makes the very pertinent remark that he found that facts which were in disagreement with his theories slipped from his mind much more easily than those which harmonized. If such a cause of error required to be guarded against by a Darwin what can be expected of ordinary humanity, which is not only not on its guard against it but cherishes it with fond affection?

Then there is the small residuum of genuine cases in which some form of functional nervous disease, a paralysis, a contracture, a neuralgia, a convulsion, which has undergone all sorts of scientific treatment in vain, yields in the hands of a faith curist.

Statistics in such matters are obviously very untrustworthy. A few years ago Mr. H. H. Goddard prepared for his graduation thesis at Clark University a paper upon this class of cures, and was kind enough to show me some of the answers returned to him, some of them referring to patients who had been under my care. He came in contact with one man who had had a good deal of success in dealing with many cases of which a considerable proportion were evidently functional nervous, and who was willing to give information which Mr. Goddard believed to be full and candid. He was not a medical man and his diagnoses were consequently not very trustworthy but were probably honest. He was willing to speak frankly of the cases which were not cured. This information Mr. Goddard compared with the published statistics of the celebrated medical hypnotists as representing the scientific side of the question. He found that in a general way the two sets of cases corresponded fairly well both as to percentages of cures and as to the class of cases benefited.

"He (Dowie) says, in a certain issue of his paper: 'I pray and lay hands on 70,000 people in a year.' At that rate he would have prayed with 175,000 in two and one-half years. But in the two and one-half years immediately preceding this statement, he reports only 700 cures. The conclusion is indisputable that only a small portion of those prayed with are cured." — Goddard.

As regards the every-day practice of medicine with its very great proportion, among the acute cases, of infections; and among the chronic infections and degenerations, scleroses and new growths, psychic therapeutics as a primary and essential treatment finds but little scope, while as an adjuvant to the healing forces of nature and time it is and always will be a most precious resource of the physician, and he who wields it most judiciously will be the most successful.

Among the psychoses, notwithstanding there are many and great limitations even upon the side which we must still consider functional — though any day some new method may show us the incorrectness of this view — the relation is reversed, and the physician must look upon the building-up processes and the various appliances in use, pharmaceutical and otherwise, not only for their real and direct but for their mental impression.

For either case he must look before all for a diagnosis.

A CONSIDERATION OF MENTAL THERAPEUTICS AS EMPLOYED BY SPECIAL STUDENTS OF THE SUBJECT.*

BY JAMES J. PUTNAM, M.D., BOSTON.

THERE are but few kinds of disorders which interfere more with the happiness of the community than those which cause a painful and hampered action of the mind though without implying the presence of serious mental derangement. The disorders to which I refer are mainly those characterized by insistent thoughts, emotions and impulses, "obsessions" and "morbid fears," which the patient recognizes as largely causeless yet cannot shake away. Starting, perhaps, with some severe or prolonged emotional strain, and on the basis of some weakness or defective organization which one would call hysterical or neurasthenic, these morbid tendencies become deepened by habit, and expand into complex systems or "temperaments," which mingle their influence with every motion of the mental life; or they show themselves in the form of occasional outbreaks which really have a definite, though hidden, history, or as constantly recurring and seemingly causeless tricks of muscular movement, the "tics" of the French writers, and in many kindred ways.

Even the "fatigues" and faintheartedness of neurasthenia are, in some measure, to be classified amongst these inco-ordinations of the mind.

These affections cloud the happiness of many persons whom every doctor meets upon his daily rounds, and yet, in spite of this fact, they are far more susceptible of relief, under prolonged and skilful treatment, than is commonly supposed.

On these accounts there is no branch of therapeutics more deserving of study than that which forms the subject of this conference. Of course, the mental therapeutics may rarely be the only kind of treatment to be thought of. Sometimes an impaired general nutrition stands in the way of improvement, or some local ailment, which perhaps a gynecologist or an orthopedic surgeon can remove, has lowered the vital tone just enough to make the patient a prey to troubles which would otherwise have been resisted, and if such a physician or surgeon is wise he may make his treatment the starting point of a new departure of hopefulness to which, perhaps, no other avenue could have been found.

But after the ground has been cleared through a consideration of these possibilities, there remain innumerable cases where some sort of specialized mental influence or education has to be employed. Of course, in practice, each case has to be studied by itself, but it will be useful for the purposes of this paper to distinguish between the patients who are more or less continuously and painfully conscious of nervous weakness or hypochondriacal depression and those whose symptoms present themselves intermittently, or only under certain conditions. The patients of the former class are mainly those suffering from neurasthenia, with its attendant distress of body and mind, while the sceond class is represented by the sufferers from morbid fears of specific sorts, or occasional outbreaks, often of a serious nature, which may, for convenience' sake, be classed as hysterical. In the case of the first of these two classes the question of bodily nutrition and reflex excitations is much more important than in that of the second class, and when these questions have been eliminated the problem as regards the mental state is the relatively familiar one of seeking to secure the conditions under which the patients can live a relatively active and useful life, of inducing in them, in an adequate form, the sentiments of courage, confidence, patience and determination, and making them familiar with the dangers that are likely to threaten from without and from within.

It frequently happens that the question of happiness or unhappiness of patients with severe forms of neurasthenia depends largely on influences which would ordinarily be classed as social rather than medical, though, in fact, the physician can help greatly in determining what the outcome of these influences shall be.

I have heard so many patients say that they had formerly entertained great disdain for nervous weakness, if not for the patients who allowed themselves to be controlled by them, that I think such sentiments must be very common in the community, and must be the cause of many needless burdens of distress. The time must surely come when nervousness and even serious

* Read at the Annual Meeting of The Massachusetts Medical Society, June 8, 1904.

mental derangements will be regarded in much the same light as other forms of illness, and with the growth of such a sentiment as this there will be great mitigation of individual suffering. For, to a great extent, a man's estimation of his own misfortunes is a reflection of the estimate made, or which he thinks is made, by others. I am inclined to believe that the real root of the disdain to which I have referred is sometimes a sense of dread for themselves, on the part of those who entertain it, which they try to suppress by an instinctive affectation of superiority.

It is quite natural that where influences of a spiritual order are in question, laymen should feel themselves on a par with the physician, and the fact that they often do so has shown itself in a thousand ways.

Most of the therapeutic influences coming under this head have taken their coloring from philosophy or religion,[1] and the patients in whose behalf these influences have successfully been exerted have often gained, through their illnesses, an insight into a higher life. Within the past decade another interesting and successful enterprise has been set on foot by a citizen of Zurich, Grohmann by name and originally an engineer by profession, consisting in a species of sanitarium where the healing influences are represented by real work, and simple habits of living, in a small community. The founder of this almost unique establishment is a man of intelligence, devotion and force, and his work is carried on under the auspices of some of the best physicians of Switzerland and Germany. The superintendents of sanitariums might well learn a lesson from this hardy effort, which is characterized, perhaps, not so much by novelty of idea as by novelty in the thoroughness of its execution.

It was intimated above that neurasthenia sometimes shows itself under a form that might be called "hysterical," but to avoid a term which is susceptible of misinterpretation, one might say it sometimes happens that persons who have suffered from neurasthenia fall into habits of invalidism which cling to them after they have really recovered from their original illness, and which the memory of their former sufferings makes them dread to disregard. The "neurasthenia" of youthful adolescence is often of a similar order. These are cases which might, strictly speaking, be better considered with the disorders of the *second class*, of which we are about to speak, but in fact it need only be said of them that they offer an excellent chance for intelligent and vigorous handling, the aim of which is to restore the confidence which has been lost.

The *second class* of cases, represented by the morbid fears, fright psychoses, insistent ideas and epileptiform or hysterical outbreaks, are much harder to deal with, and yet it is with regard to these that some of the best work of the last ten or twenty years has been done.

[1] A suggestive and stimulating essay entitled "The Spiritual Treatment of Neurasthenia," by Arthur A. Cary, is published in The New-Church Review, for April, 1904.

Fortunately, it is also true that some of the insistent fears which seem so invincible when they are present turn out to be possessed of little substance if resisted boldly and not taken too seriously. Under these circumstances a strong effort, or a series of graduated efforts, in which the patient is firmly supported by the physician, may overcome a morbid fear of long standing. The determined adoption of the attitude of dogged indifference, based on confident and authoritative advice, will often suffice to carry the patient through the first severe trials. Sometimes the triviality of a distressing but causeless fright can be made to appear more evident through the demonstration that it can be relieved by a trivial distraction, just as a slight turning aside of the attention may relieve the cramped mental attention of a balking horse.

On the other hand, there is an equal or greater number of insistent ideas, which seem trivial yet are so hard to master, that one is reminded of the legend of Thor, who in vain tried to drain off the horn of wine that had been given him, and found, at last, that it was connected with the sea.

It is a noteworthy fact that a good share of the advance in modern psychology, involving the so-called psychology of the sub-conscious life, is based on data which are the contribution of medical science. These studies have been of immense value in the interpretation of those forms of mental inco-ordination to which allusion has been made. They have taught that while we regard ourselves as free agents and our mental life as forming one harmonious mechanism, no one is really as free, no one's life is so complete a unity, as he would like to think.

Every one of a man's acts expresses, in a sense, a history of his life. What he has done before he will tend to do again, and the old habits and motives (themselves the expression of his total and partly unconscious experience) will ever strive to reassert themselves.

This principle will be admitted, but it is not usually realized how strongly and instinctively a man lends himself to self-deception in this matter, not what an important bearing this self-deception has in causation of disease. It is on this point that I now wish particularly to speak.

Under the exigencies of competing successfully with our fellow-men, a strong instinct has developed itself which leads us to push to the front, into the field of our habitual consciousness, only those memories and motives which seem of distinct utility in the attainment of our present, conscious needs. This arbitrary group of memories we call "ourselves" and we push out of sight those experiences of our past life which do not harmonize therewith.

It is of no apparent use to a man to recall a painful emotion or a serious fright. If he could he would gladly wipe them out from the records of his life, and, as it is, he strives to thrust them into the background, not realizing that he might, if he had the power, training and insight, con-

sciously assimilate these experiences, and that his present motives would be fuller and richer for their presence..

But it often happens that these painful experiences and memories which, in his ignorance, he thinks so needful to be rid of, often refuse to be banished thus cavalierly. His refusal to deal with them does not make them disappear from his mind, but as he cannot or will not assimilate them and utilize them and acknowledge the lessons which they could have taught, they lead a sort of parasitic existence in the mind and form a species of organization hostile to his well-being. And thus it happens that a serious breach is made in the unity of the conscious life, and a breach that may constantly tend to widen.

To this process the term "dissociation of consciousness" is often given, and it is one of far-reaching significance. Thereafter, when a call for action comes, a double set of reflexes — as for convenience we may call them — will tend to show themselves; one set expressive of the organized experiences, memories, and motives which the individual would be glad to have reckoned as constituting his personal identity, the other set expressive of the mental experiences which have clustered around some of these unassimilated painful emotions as a center.

Thenceforward, also, the conscious mental life will be marked with confusion, with a sense of an unexplained something which is wrong, and with inefficiency and self-distrust. In many cases the disorganization has its roots even far back in the years of childhood.

The function of the doctor is to heal this breach, to neutralize the dissociation which has taken place, and to restore the previous unity of the mind.

It is with regard to these cases that the method first employed by Janet, and by Breuer and Freud is of such great importance, and although the first communications of these writers were made a good many years ago, it is to be observed that their painstaking labors and those of a few others who have worked upon the same lines, amongst whom are to be mentioned our own colleagues, Russell Sturgis, Hamilton Osgood, Morton Prince, and Boris Sidis, have strongly reinforced the value of the facts as first stated.

It has been found that painful experiences are often enabled to work mischief just because they are hidden from the patient's view. The aim then ought to be to bring back the hidden experience into the clear light of consciousness, so that its real significance can be estimated, after which the reorganization of the disordered forces of the mind is likely to take place of itself. Sometimes the result thus aimed at can be attained by inducing the patient to talk at length and in full detail about all the circumstances connected with the onset of his illness. So strong, however, is this instinct for thrusting the unwelcome experiences out of sight, that the patient may, at first, declare himself wholly unable to recall any facts of which the physician can make use for making clear to his own mind the exact history of what has taken place. Nevertheless, if the patient co-operates voluntarily by withdrawing his attention from all distracting thoughts, relaxing body and mind, allowing his memory to be led by skilful questioning, and forcing himself to narrate every detail, however trivial or painful, connected with the onset of his troubles, it may be found at last that the whole story will be disclosed which the patient had instinctively excluded from his memory, and that, in this way, the chain of morbid links, stretching from the patient's present condition back to the experiences in which his symptoms had their rise, can be laid bare.

In a certain sense, it may be said that the hands of the clock are thus turned back to the date of these events, and that the patient is made to live over again that period of his life. Under these circumstances one can deal with him as one would have been glad to deal with him at that time, but with the difference that he is now more in the mood of responding favorably to encouragement and to reassurance. It may thus be said that, in a new sense, it is possible to " minister to a mind diseased," to "pluck from the memory a hidden sorrow."

This method of analysis of the patient's memory is useful for the purpose of diagnosis as well as of treatment. Through it the discovery may be made that conditions which had been thought to indicate the existence of serious forms of epilepsy are really curable attacks of a hysteroid character. Sometimes this analysis and treatment can be carried out more effectively when the patient is placed fully in the hypnotic trance. When this is decided on, the object of the treatment is explained beforehand, and the patient is assured that when he wakens from his trance he will remember clearly all the facts connected with the painful experience which it has been sought to discover and to remove.

The thought of hypnotism brings unpleasant associations to the minds of many persons. It has been thought that it tends to loss of independence and weakening of the will, and that it is, altogether, a practice to be discountenanced. As a matter of fact, these dangers do not, practically, exist. Even at an earlier time, when hypnotism had its day as a popular craze, the evils that were attributed to its use were not due to the hypnotism as such, but to the conditions of morbid excitement that went with it. Certainly, when it is employed by skilled persons, for the purposes that I have suggested, and with the sole desire of accomplishing through its means the object of the treatment, which is to make the patient master himself, there is no objection to its employment, and it may be used as a means of strengthening, and not weakening, the will, with the same confidence that this result is sought as the outcome of a rational conversation.

It is an idle criticism to say that hypnotism should not be employed because it induces states which are "morbid" or analogous to hysteria. We are continually inducing " morbid " states for therapeutic purposes, as by ether and mor-

phine, and artificially limiting and rearranging for special ends the movements of our conscious life. In each case, the only question is as to the value and significance of the ultimate result, regarded in all its aspects.

The cases of "traumatic hysteria," which occur so often in every physician's practice, afford remarkably good illustrations of some of the points which have been mentioned in the foregoing remarks. Thus, we have in them examples of typically painful and insistent experiences, which are here of especial interest because they often occur among persons not previously of an hysterical temperament. The instinctive effort to push the memory of such experiences out of sight, and likewise the fact that they really continue to live and to act with gathering force, are clearly brought out in the histories of these patients. Frequently such a person will say that he has followed his usual avocations, and that the thought of his mishap has not been prominently present to his mind, and even that he cannot recall distinctly the events that occurred. Nevertheless, a careful investigation will show that in his dreams at night, or in hysterical outbreaks, the circumstances of the accident are reproduced in minute detail. It also may appear that one arm or leg or one half of the body feels weak and is lacking in sensibility, and that effort of every kind is attended with fatigue and distress. Such a patient does not know that he has been suffering from a dissociation of his consciousness, and that while he has been instinctively striving, for his own peace of mind and for the sake of conventional appearances, to present the same front to the world that he presented before the accident, he is really under two masters, who do not act in harmony; that his mental forces are like an army through whose ranks a more or less organized demoralization has been spreading. He is not aware that the anesthesia may, for the dissociated portion of his consciousness, be a hyperesthesia, nor that the weakness and fatigue indicate that he is carrying a burden that is unseen.

Sometimes the patients of this class get well readily of themselves, under the influence of a return to their usual pursuits, but, in my experience, this result is less common than that of a more or less prolonged invalidism, unless, indeed, the case is taken in hand early and the patient is intelligent enough to put himself under favorable conditions for a cure. We have recently been able to relieve, at the Massachusetts General Hospital, one such patient who was suffering in an acute form from the anesthesia and hysterical tremor consequent on an accident, and in spite of the fact that a suit-at-law was pending.

The foregoing brief and diagrammatic sketch of certain aspects of mental therapeutics must be supplemented by at least a reference to certain other points.

It should be distinctly remembered that the necessity for mental treatment, even in the severer cases, does not exclude the necessity for general and local treatment, and this is true even for those conditions where, by strongly turning the mind in one or another direction, and enriching the conscious interests, we can enable the patient to overlook and forget his sufferings. We may, indeed, sometimes accomplish this result, for a time, by exciting a sort of mental exaltation, but then the mental treatment becomes a species of narcotic, and though narcotics have a distinct place in rational medicine, their employment is liable to great abuse and needs to be safe-guarded with especial care. The fact that the small boy's toothache disappears when he arrives at the dentist's door does not prove him to be beyond the need of the dentist's attention.

On the other hand, the local or general treatment, in the hands of a physician who really understands the mental needs of his patient and is prepared to use his influence in the best way, is often productive of a degree of benefit which the neurologist alone cannot secure.

The contrast between the expert mental therapeutics of the present day and that of an earlier period lies, thus, largely in the clearer definition of the objects to be sought and the steps by which these objects are to be attained. Most of the newer leaders of thought in such matters have turned aside from the inquiry, What effects can be induced by mental influences, to the study of the diseases for which these influences, among others, are of use. It will be remembered, for example, that, some fifteen years ago, a wave of revived interest in hypnotism spread over this community. Liébault and Bernheim had recently published their marvellous tales, the controversy between the schools of Nancy and of Charcot was still fresh, and a few of our townsmen had returned from abroad to show that Americans too could be hypnotized and cured of many ills. For a time the word hypnotism was on all lips, and the list of its accomplishments grew longer day by day. Many books were published, and a number of men, some of them of great ability, devoted themselves exclusively to that branch of practice. Their experience has certainly been of the greatest value, and many of the same men are still working and publishing on the old lines. On the whole, however, there has been, I think, a clearer recognition of the fact that one cannot deal satisfactorily with "suggestion" until a great deal more has been learned of the nature of the diseases in the treatment of which "suggestion" sometimes proves a partial aid, and of late years the pathogenesis of "insistent ideas," of "multiple personalities," of hysteria, and of the hysteroid forms of epilepsy and neurasthenia, has been studied as never before.

These studies have taken the form of clinical researches of the most minute and searching kind. Through analytic case-histories, patiently recorded, it has been sought to picture the mental history of sufferers from such disorders as those enumerated, with the same sort of fidelity as is displayed in the descriptions of the anatomists.

These researches have already placed mental therapeutics upon a far more rational footing,

and as time goes on their effects are sure to be more and more apparent.

The neurologist of the future will seek to treat his patients upon the basis of a broader and more intelligent study of their individual experiences and of the influences to which they have, severally, been exposed. He will try to leave each one better able to understand himself, less inclined to waste his strength in aimless self-reproaching, or to yield to paralyzing fears, and more inclined to engage hopefully and with interest in the task of successfully asserting his intelligence, his conscience and his will. And these results will not have been attained, or at any rate it will not be sought to attain them, by appeals to superstition or ignorance, but by methods which reflect the true spirit of scientific research.

No attempt need be made to draw a sharply dividing line between physical and mental therapeutic agents. It is desirable, on clinical grounds, to recognize that a kinship exists between the influence that improves the nutrition of the brain by increasing the harmony and efficiency of its functions, and that which reaches the same end by improving the quality of its nutrient fluids, or the mode of their distribution. With this principle borne in mind, the physician will be more apt to treat his patients from various points of view simultaneously, and not to neglect one for the other.

It seems impossible, in this brief communication, to refer by name to the men who have placed this branch of medical science on its present footing, or to refer to the attempts in the way of treatment with which I have become personally familiar. I must, however, in justice mention that the work of a number of our colleagues in Boston has contributed materially to the building up of this new branch of medicine, and has justified the placing of their names alongside of those which are so familiar to all students of the foreign literature with relation to this topic. Nor can I forget that it is owing mainly to the devotion and the skill of my friend and associate, Dr. George A. Waterman, that the winter's work at the Massachusetts General Hospital, in the Out-Patient Department and in the neurological ward, has been fruitful during this past season as never before.

OPERATIONS ON THE STOMACH, WITH REPORT OF CASES.

BY JOHN C. MUNRO, M.D., BOSTON.
From the Surgical Clinic, Carney Hospital, Boston, Mass.

(Continued from No. 6, p. 152.)

No. XCVI. Male, sixty-two years old, referred by Dr. Boland.

For three years the patient had had pain in the stomach, and for two years he had been unable to work. The pain would come two to three hours after eating, and during the night it was so severe that he could not sleep. He had had some vomiting, of excessive amounts and of retained food but without blood or coffee grounds. There was much eructation of gas with relief. Marked constipation for two years. He had lost about thirty pounds in two years and had been under treatment at the various hospitals, etc., without relief.

At operation, at the Carney Hospital in June, 1904, a dilated sagging stomach was found with a hard scirrhous growth at the pylorus adherent to the gall bladder near the cystic duct and to the liver which was directly infiltrated. The patient was in no condition for radical operation, so a posterior gastro-enterostomy with clamps and sutures was made and the abdomen closed. There were no enlarged lymph nodes to be felt, but there was malignant infiltration into the liver.

Convalescence was most satisfactory, and he was discharged shortly afterwards eating and digesting well.

Of the foregoing thirty-two patients operated upon for malignant disease not a single case came early enough for radical cure. For the early deaths after operation less blame must be attached to the interference than to the long delay before operation was allowed. A few cases were of the fulminating type, and early operation, if it had been obtained, would have been futile.

In many of the histories of the malignant cases in the hospital records, the early symptoms were not put down and probably were not inquired into. In all probability careful cross-examinations would have brought out suggestive and pertinent data by which malignancy could have been suspected.

Practically no case, however hopeless, was refused operation, and the few that were so markedly benefited give encouragement in dealing with these forlorn people.

In several, the degeneration of a benign ulcer was most probable, and it emphasizes the occasional danger in treating a chronic ulcer as though it would remain benign indefinitely.

The rarity of vomiting as a symptom should be referred to over and over again, as demonstrated in these cases.

The combination of advanced age and steady loss of weight is very suggestive. Persistent pain in the stomach was common. In a few instances it was relieved temporarily by the ingestion of food.

Just as in chronic ulcer the steady limitation in diet is one of the most valuable clinical symptoms, especially if it takes place in spite of rational internal treatment.

Some patients were watched by their physicians until a tumor could be felt, in order to make a diagnosis, in the face of more leading signs as shown in emaciation, pain, vomiting or nausea, retention of food, etc.

However willing we may be to attribute death in the worst cases to the operation, yet to one who has watched them closely it is clear more and more that the prolonged starvation and the absorption of decomposed and never digested food play the most important role, although the end occasionally may be hastened a few days by operation.

The following seven cases of perforation are grouped together.

No. XXXVIII. Female, twenty-one years old. For three or four years she had complained more or less of constant pain and distress in the stomach. She had never had hematemesis and, in fact, said that she had never vomited till four days before entrance to the City Hospital, October, 1896. Pain in the stomach became more severe than usual at that time, but she continued at her work. This pain persisted, and the day before entrance, in the morning, suddenly became very severe. She vomited and had a chill. On going to bed the abdomen at once began to distend. The vomiting ceased shortly afterwards, but the epigastric pain and distention continued. At entrance she looked bleached, with a pinched, anxious face, a distended, tender abdomen, with the tenderness and rigidity most marked in the left side below the costal border. There was rapid, shallow respiration and quick pulse.

At operation the peritoneal cavity was found to contain gas and stomach contents. A round, punched-out perforation was found a little anterior to the lesser curvature, at the pyloric end of the stomach, barely admitting the tip of the finger. The surrounding wall of the stomach was too brittle to allow the ulcer to be closed by suture so the pyloric end was drawn forward to the surface of the parietal wound and sutured there into place. The general cavity was then flushed out with sterile water and drained with iodoform wicks and a glass tube. A rubber tube was sutured into the stomach through the ulcer and carried to the outside of the dressings. Although the patient was in bad condition at the beginning of operation she stood it fairly well, stimulation being given freely. She improved for four days and was apparently on the road to recovery, when, in the evening, she suddenly collapsed and died with much suffering.

Autopsy showed a large pocket of pus deep in the pelvis. The ulcer was well walled off from the general cavity. Had the pelvis been drained as has been emphasized by Lund, I think recovery would have taken place almost without question.

No. XXXIX. Female, twenty-one years old. Entered the City Hospital in October, 1897.

She had complained of dyspepsia for several years, at times vomiting, but without blood until five weeks ago, when she vomited material that looked like coffee grounds. Two weeks before entrance there was severe pain in the left side of the abdomen, lasting for twenty-four hours, which on the following day was very severe, but did not last long. This pain she described as of a gnawing character. For a long time she had complained of soreness over the gastric region. Four days before entrance the pain in the left side was more severe, coming on suddenly with vomiting, but without blood. Since then the pain had been continuous while the tenderness of the abdomen had been general from the start. The bowels, naturally constipated, had moved frequently. At entrance the abdomen was distended and exquisitely tender. She was transferred from the medical service on the day of entrance, for operation, when edema of the abdominal wall was found, especially marked above the umbilicus. The peritoneal cavity contained gas, pus and stomach contents. An opening into the stomach was found on the anterior wall near the lesser curvature, about the size of a lead pencil, with thickened, cheesy edges. This could be turned in and sutured. The general cavity was then flushed out and the region in the neighborhood of the ulcer was packed with glass tube and iodoform gauze. The abdomen was filled with salt solution, the foot of the bed was elevated, and stimulation used freely.

The following day she was much weaker, and two days after operation she died. No autopsy was obtained, but examination through the wound showed that there had not been any leakage, the wicks being clean and dry.

No. XL. Female, twenty-one years old, entered the City Hospital in December, 1900.

For six months or more she had had stomach trouble, with pain coming on immediately after eating, and relieved by vomiting. She had never vomited any blood nor passed any dark-colored stools.

Two days before entrance she was taken with sharp pain in the upper abdomen three hours after eating, followed by vomiting but without blood. During the evening the pain became severe and was followed by a chill. At entrance she felt better but was vomiting. She looked sick, with drawn face, moderate distention, tenderness and spasm all over the abdomen, most marked in the epigastrium.

Operation at once showed cloudy serum beneath the peritoneum and diffuse marked fat necrosis of the omentum. There was thin pus in the pelvis and epigastrium. The omentum was found surrounding a large pocket of bile and thin pus, either behind the omentum or in the lesser peritoneal cavity. In addition there was another large pocket of bile, pancreatic fluid and pus in the hepatic region. There was fibrin with necrotic areas in the pyloric end of the stomach, and on the anterior surface close to the upper border, was a clear, punched-out opening a quarter of an inch in diameter, which was easily closed with a double layer of mattress sutures. The cavity was irrigated thoroughly, both the epigastrium and pelvis being drained. Just as soon as the operation was started the patient went into collapse, and although operation was done as rapidly as possible she was in profound shock at the close. She rallied a little, but died in about twelve hours.

Partial autopsy showed the location of the ulcer as described above. In this case there was a pancreatitis in addition to the perforated ulcer.

No. XLI. Female, twenty-five years old, entered the Carney Hospital medical service in November, 1903. She had complained of indigestion all summer, with sharp pain in the epigastrium in the morning and soon after eating. There was some gas, and at times she vomited several times a day, followed by freedom from vomiting for a week. The amount had always been small and nausea preceded the vomiting. Nine days before entrance she complained of a sharp epigastric pain, radiating to the right side and left flank, back and shoulders. It was so severe that she fainted. The pain continued until the following night, when she was given castor oil, and vomited. She then went to bed for five days, at the end of which time the vomiting and pain returned. The day before entrance she vomited and was tender along the lower costal border. The abdomen was tense but not distended. There was marked tenderness in the left side, through the ribs to the loin, as well as in the epigastrium. She was transferred three days later to the surgical side, with severe pain, high leucocyte count, and marked restlessness.

At operation there was a large quantity of foul pus and gas in the abdominal cavity. The anterior wall of the stomach formed the floor of the abscess cavity, the pus burrowing over the dome of the liver laterally, on both sides, as well as beneath it. Below and laterally the dilated stomach was adherent to the anterior wall, evidently limiting the spread of the pus. No definite perforation was seen. The stomach was adherent to the liver and these adhesions were not disturbed except to open whatever pockets there were. A small opening was made over the pubes. But the lower portion of the abdominal cavity was found free

of infection and this wound was closed at once. The upper wound was packed with iodoform gauze and a glass drain, the patient being no worse at the end of the operation than at the beginning.

The purulent discharge continued for a number of days, while she slowly and steadily improved. At the end of six weeks she was discharged much relieved, to our Surgical Out-Patient Department, where she was treated for several weeks for a granulating wound in the upper part of the abdomen. In March, four months after operation, she was at work and in good condition. When seen in May she was still in good condition and working steadily.

No. XLII. Male, forty-five, was seen with Dr. Brown of Newburyport in October, 1903.

When twenty years of age he had attacks of abdominal pain somewhat similar to the present one, coming on every few months, but not so severe. He would be sore for a day or two, but gradually outgrew these attacks. For several years he had had indigestion, which disappeared entirely at times. Pain had always been in the epigastrium, coming on about an hour after eating. He had never vomited. For a few days before I saw him he had felt as though there were a lump in his epigastrium. The night before I saw him he was awakened with very severe epigastric pain. Dr. Brown saw him an hour later and found him in agony with a hard, rigid belly. He had vomited somewhat but without blood. He was given morphia in a large dose and taken at once to the Newburyport Hospital.

At examination, six hours later, he had abdominal spasm, most marked in the epigastrium and right hypochondrium.

Operation showed free gas, bile and mucus in the abdominal cavity and a small round opening in the anterior wall of the duodenum close to the pylorus, from which gas and fluid were escaping copiously. About the opening there was slight thickening and a faint scar that would have escaped notice but for the hole. The latter was closed with a double purse-string suture and the omentum sutured over this. A posterior gastro-enterostomy, with clamps and suture, was made and the cavity irrigated out thoroughly. The upper wound was closed, but a small suprapubic puncture was made for the draining of the pelvis, and we found that, in spite of the thorough irrigation, there was some fibrin deep in the pelvis, which would have escaped detection otherwise.

The patient made an uninterrupted recovery, and six months later was perfectly well.

No. XLIII. Female, nineteen years old, entered the City Hospital in January, 1900.

Two years before that she had been treated on the medical side for gastric ulcer, vomiting considerable blood at the time. Three months before I saw her she had vomited for several days and had had much abdominal pain. At the end of a week she was well again. Two weeks ago she had a recurrent attack and vomited everything that she ate. She also had considerable pain in the epigastrium, extending to the left shoulder. Since her early attack, in 1898, she had never vomited any blood, but had been troubled with heart-burn, gas, distress, and, at times, pain after eating. In other words she had never been entirely relieved of her ulcer symptoms. The afternoon before entrance she had acute pain in the epigastrium, without vomiting or fainting. She was restless and feverish all night, but in the morning felt better. At entrance she was in good condition, with no distention, but with spasm and tenderness of the left rectus and in the epigastrium.

At operation the peritoneum was found very edematous. Lying close to the anterior wall was a cyst the size of a hen's egg, containing serum, apparently due to peritoneal fluid pent up in the adhesions. A few flakes of lymph were found on the neighboring coils of intestine. At the pyloric end of the stomach close to the lesser curvature was a perforation a quarter of an inch in diameter, through which some curds could be pressed. This ulcer lay in the midst of thick edematous tissue, extending towards the pylorus and half way to the edge of the greater curvature. Any stitches placed in this perforation cut out at once. A crater-like area was then excised and the wound was closed fairly satisfactorily, but the stomach wall was so brittle that it was difficult to invert the edges in order to cover in this line of sutures, so the healthy, lower portion of the stomach below the perforation was turned up and sutured against the line of stitches, completely shutting off the perforation from the general cavity. The abdomen was then irrigated out and the wound closed except for an iodoform gauze and glass drain.

She vomited a few times for several days, but otherwise convalesced satisfactorily and was discharged in about six weeks, with the wound firmly healed and without symptoms.

Nearly four years later she returned to the Carney Hospital with a recurrence of her old symptoms, that is, distress and pain about an hour after eating, vomiting of blood, with temporary relief following evacuation of the stomach. These had returned about three weeks before her entrance and, fearing that she might have another perforation, she sought operation.

At operation in December, 1903, the omentum and the anterior wall of the stomach were found adherent to the parietes and the stomach appeared considerably dilated. Both lobes of the liver were adherent to the anterior stomach wall by old, firm adhesions and deeper by lighter adhesions, the liver being drawn down for an inch or more below its normal level. Over the duodenum and pyloric portion of the stomach there was a light sheet of peritoneal-like adhesions, obscuring this portion of the stomach. The gall bladder was normal. The portion of the stomach adherent to the parietes was approximately in the region of the former perforation. The adhesions here were firm and deep, and after being dissected away, left a raw space that was covered over by a peritoneal flap. A posterior gastro-enterostomy, with clamps and sutures, was made, and the wound closed in layers.

The patient vomited more or less for the first three or four days — some of the vomitus containing digested blood — and she was discharged in three weeks, relieved of her symptoms and feeling well, eating house diet without discomfort and with a good appetite. When seen recently she was in excellent condition, eating ordinary food and working regularly.

No. XCVIII. Female, twenty-one years old, was seen by Dr. Bottomley, with Dr. Thompson of Fitchburg.

The patient had been strong and well up to four years ago, when she had an attack of grippe, with loss of strength, followed a year later by distress after eating, not marked at first, but a year later accompanied by attacks of vomiting lasting from a day to a week. No blood had been seen in the vomitus nor stools. For four or five months she had had epigastric pain, more or less constant, and always after eating.

Forty hours before she was seen by Dr. Bottomley she had a sharp sudden attack of pain, coming on two hours after eating, with collapse, nausea and extension of the pain over the abdomen generally, and into the left scapular region. These symptoms continued for

thirty-two hours before she summoned medical aid. Distention began about twelve hours after the onset of the attack.

At operation there was general abdominal distention, a pulse of 130, temperature 100° and respiration 40, though she did not look very ill. Tenderness was most marked in the epigastrium and to the left. There was general abdominal spasm. On opening the abdomen, gas and large quantities of light green fluid escaped. A perforation, admitting the finger, was found on the anterior wall near the pylorus and fairly close to the greater curvature. About the perforation there was considerable induration, but it could be turned in and closed by a double row of linen purse-string sutures. The peritoneal cavity was washed out, the pelvis drained through a suprapubic opening, and the patient put to bed with the head elevated.

She recovered well from the operation, but died in forty-eight hours of general peritonitis.

Although perforation of an ulcer is rare, the possibility of this accident should be considered as carefully as the possibility of a perforation of an appendix, especially when a previous history pointing to gastric trouble can be obtained. Probably a large proportion of these causes can be cured if they are detected and treated surgically within the first twenty-four hours.

One of my cases would probably have recovered if I had had the wisdom to drain the pelvis, which in such cases cannot be flushed out thoroughly from the upper wound.

All of these cases gave histories of more or less continuous gastric symptoms before the operation. The plea that some cases of perforation recover spontaneously as shown in several of our patients reported in the ulcer series is not worthy of consideration, when contrasted with the relative safety of intelligent, early, surgical interference.

The following case is the only one of pyloroplasty that I have done. It is an operation that nowadays is discouraged as being less efficacious than the more radical procedures.

No. XLIV. Male, thirty-nine years old, entered the medical service of the City Hospital in October, 1899.

Two years before that he began to have epigastric pain after eating, with much vomiting. He was in a hospital in Brooklyn for three or four months, where he improved somewhat. He then grew worse and was in a hospital in Maine for several months, steadily growing worse. At entrance he had pain in the epigastric region, and vomited everything he ate, the vomitus being dark generally, but slightly tinged with blood once or twice. He had lost weight steadily, was very weak, and had much belching of wind. The bowels were constipated. Numerous tests were made of his stomach contents, hydrochloric acid being found present or absent at different times, and so far as the interpretation of the chemical analysis went, nothing definite could be determined as to the presence or absence of a malignant growth. In brief, there was marked stasis and distention, persistent vomiting, with pain in the epigastrium; in addition to this he was steadily losing weight. After about seven weeks of medical treatment he was transferred to the surgical service, much emaciated, with tense abdomen, but without any definite tumor to be felt.

At operation the pylorus was found closed so that it admitted only a director. A pyloroplasty was done and the abdomen closed. No ulcers were found in the stomach or in the pyloric region. He rapidly gained weight and strength and was discharged in a month, eating solid food, with good digestion. A year later, he was seen in perfect health, fat and strong.

This, the only case operated upon by the old method for enlarging the pylorus, illustrates the wisdom of operating in cases, no matter how hopeless the outlook may be. For all that we could tell, the case was malignant, and had it been so, he probably would have promptly died. As it was, he proved to be the most brilliant and satisfactory case that one could desire.

CASES OF PARTIAL GASTRECTOMY.

No. XLV. Male, thirty-five years old, was seen in November, 1901, with Dr. Goodwin of Clinton, convalescing from an attack of acute gastric ulcer and suffering in addition from a mild attack of appendicitis. He quieted down and operation was advised in case of return of the trouble. He gained for a number of months; then, a short time before operation he had a return of his gastric pain and eructations of sour fluid. This was followed by distress, with vomiting, the distress severe in character being located in the epigastric region. Vomiting relieved it temporarily. Three times he had noticed coffee-ground material.

At operation, November, 1902, at the Clinton Hospital, a dilated stomach was found, with a hard, crater-like tumor of the lesser curvature, a little to the right of the middle. There was also an old scar and induration of the pylorus. A partial gastrectomy was done, the proximal third only being left. A button anastomosis was made between the stomach at its lower anterior edge and the jejunum. The omentum was sutured about the joint. The patient was in good condition throughout.

He steadily improved, and in March, 1904, he reported himself as in good health, eating heartily.

Pathological report of the ulcers, which at the time of operation looked suspiciously like carcinoma, showed them to be simple ulcers of the stomach.

No. XLVI. Female, thirty-one years old, referred by Dr. Smithwick.

Eleven years before I saw her she had indigestion, with vomiting, lasting about six weeks. At no time was blood seen. After this more or less stomach trouble persisted, marked by pain in the epigastrium, and indigestion. In 1898 there was a severe attack of pain and vomiting, with some blood, and she went into the hospital for a month and was convalescing for two months. She then worked four months and had another attack, which laid her up for three months, but after that was unable to work for two years. Before I saw her, in August, 1903, she had tried to work for four months, but every day she had epigastric pain with vomiting, and was unable to eat anything except milk and lime water, or malted milk. Vomiting came on within an hour after eating and she said that she had vomited food eaten twenty-four hours previously. She was losing weight, and examination showed local tenderness under the left rectus, which was rigid.

At operation at the Boothby Hospital, in January, 1903, an indurated, puckering tumor in the anterior wall of the stomach, probably involving the lesser curvature, and extending downwards half way to the lower border — almost making an hour-glass contraction — was found. Three bands of adhesions passed

from the stomach near the pylorus to the upper and under surface of the liver. There was a scar at the pylorus, looking like the scar of an old ulcer. The tumor was evidently an ulcer with marked contraction of the adjacent stomach wall. The ulcer was excised, leaving a large opening in the anterior wall. The edges were sutured with catgut to control bleeding, and then the peritoneal edges were closed, in a sagittal line, with a right angle, continuous, linen suture, reinforced by mattress suture. After closure of the stomach there was ample room for passage of food. The abdominal wound was closed in layers with a temporary wick drain down to the stomach suture line, the patient being in good condition at the termination of the operation.

For three days she did well, when suddenly she complained of pain in the abdomen, the pulse rose rapidly to 160, and she died within twenty-four hours.

Partial examination through the wound showed that there was probably a leakage through the stomach wound into the abdominal cavity. Examination of the ulcer showed it to be a simple ulcer and not malignant. This patient died directly as the result of operation. Had a double line of sutures been placed instead of a single line reinforced, as it was, by occasional mattress sutures, the result undoubtedly would have been different.

No. XLVII. Female, thirty-six years old, referred by Dr. Goodwin of Clinton.

For nine years the patient had had indigestion, with gradual development of vomiting, the attacks varying in length, at times being free for a few days. Two months ago she grew worse, vomiting a little while after meals, the vomiting being preceded by severe pain in the epigastrium. There was no history of retained food, and for two weeks she had eaten scarcely anything.

The stomach was found dilated, without evidence of tumor, but with epigastric tenderness.

At operation, at the Carney Hospital, December, 1903, on the anterior wall at the lesser curvature, infiltrating the lesser omentum, was a hard, crater-like ulcer of the size of a silver dollar. No metastases could be felt anywhere. A large section of the upper border of the stomach was removed and the stomach walls closed in with linen sutures. A posterior gastro-enterostomy was then done and the abdominal wound closed in layers, allowing for a temporary cigarette drain at the upper angle. After the operation the patient had no vomiting, was rapidly put on house diet, and in three weeks was discharged, eating and enjoying regular meals.

Pathological report of the ulcer showed it to be chronic inflammatory.

The patient has recently been heard from and is in excellent condition.

The fatal result in one of these three cases was directly the result of an operation badly done. With the recent technical advances the risk has been lowered very much and I feel that in time the more radical operation will be done much more frequently as being conservative in the long run.

To determine the character of the ulcers such as these patients exhibited is impossible without microscopical examination. To err on the side of caution and perform pylorectomy or gastrectomy is wiser than to err the other way, as was done in one of my ulcer cases where death from secondary carcinoma resulted.

UNSATISFACTORY CASES, NOT MALIGNANT.

No. XLVIII. Male, fifty-eight years old, entered the City Hospital in April, 1903.

His illness began with vomiting after a Thanksgiving dinner in November, 1903. The vomiting had continued and increased in frequency until at entrance the patient vomited two or three times a day. He had never seen blood and had complained of but little pain except at the outset. He had lost from thirty to forty pounds in weight.

Examination of the stomach contents showed an excessive amount of residue, absence of free hydrochloric acid and presence of lactic acid. No blood was found. Two days after entrance to the medical service he was transferred to the surgical service for operation, when he was found weak, slightly cyanotic, in poor general condition, with prominent epigastrium and visible peristalsis of the stomach. Some blood was found on a later examination of the stomach contents. The patient was too sick for operation, and for five days was fed on enemata in the hopes of getting him into condition for interference. He had grown stupid and delirious and the operation was done as a desperate resort.

Under cocaine — the patient being too ill for general anesthesia — a loop of jejunum was drawn out and a catheter fastened in, nourishment being given at once. There was some shock even from this slight operation. He was fed frequently through the catheter but steadily grew worse and died of starvation about thirty-six hours after operation.

No. XLIX. Male, fifty-five years old, was operated upon by myself at the City Hospital in 1902, for supposed cancer of the descending colon, when a band of adhesions was found in the left iliac fossa obstructing the sigmoid. These adhesions were evidently of very old origin, and as exploration of the appendix region showed a lot of old adhesions in that location, the diagnosis of old appendicitis was naturally made. Twenty years before that, he had been treated at the Massachusetts General Hospital for acute abdominal inflammation. He was discharged in a short time, relieved of his bowel difficulty, but in October, 1903, he came to the Carney Hospital with an additional history of soreness in his stomach, persisting for years, with vomiting of a foamy substance, occasionally bilious, and vomiting also of food eaten one or two days before, with relief to the pain. He was still constipated, but complained of no symptoms of bowel obstruction. He had been a steady, hard drinker for years.

At operation the loop of sigmoid freed at the previous operation appeared normal. In the duodenum close to the pylorus was a stellate scar, with adherent omentum, dragging the pyloric portion downwards and apparently causing a kink. The pylorus was open and not indurated. The stomach was not dilated. The gastrohepatic omentum was shortened, after freeing the pyloric adhesions, carrying the body of the stomach upwards and relieving the sagging at the pyloric end. The wound was closed in layers and the patient went out, gaining in weight and eating food without trouble.

It is fair to presume that the adhesions in the lower part of the abdomen followed an old perforating ulcer of the duodenum.

No. L. Female, thirty-five years old, referred by Dr. Smithwick.

A neurotic patient with stomach trouble for a number of years, growing worse in the last two years. She complained of much gas, distress, thumping sensation

in the left side, especially, and eructations. Food apparently caused pain. She vomited severely before medical treatment, but under diet had vomited only occasionally. Constipated. Lower border of stomach two inches below the umbilicus.

At operation at the Carney Hospital, a sagging stomach, without evidence of ulcers, was found, the pylorus being relatively high, but open, though irritable. The gastrohepatic omentum was shortened with catgut, lifting the lower border of the stomach nearly up to its normal level, that is to say, almost perpendicular. The abdominal wound was closed in layers.

The later history of this patient has not been obtained, but it is doubtful if she received marked benefit.

No. LI. Male, fifty-two years old, entered the Carney Hospital December, 1903, with an obscure history, suggesting persistent hemorrhage from a duodenal ulcer. He was markedly neurasthenic, moderately alcoholic, and since spring, had had some vomiting, without blood, and had been unable to work all summer. Nothing definite could be found on examination, and exploratory operation was advised.

The stomach was found U-shaped, with a stretched gastrohepatic ligament, not dilated under ether. There was no sign of ulcer. The pylorus admitted the finger easily. The liver was slightly prolapsed. Examination of the abdomen elsewhere was negative except that some large, hard nodes were found near the appendix.

A second incision was made through the rectus over the appendix, which was found small and normal, but in the mesentery opposite the iliocecal valve was a hard gland, with contracted adherent peritoneum, and from this in various directions were smaller, indurated, discrete glands, one of which was removed for diagnosis. Careful search failed to show any evidence of the primary lesion. The gastrohepatic ligament was then shortened, raising the lesser curvature to a normal angle. Both wounds were closed in layers. Pathological diagnosis of the gland removed showed "obsolete tuberculosis presumably."

This patient improved somewhat and was about ready for discharge, when he developed a facial erysipelas, and was transferred to the City Hospital, where he died ten days later of the erysipelas.

These three cases were unsatisfactory, illustrating the unwisdom of half-way measures. It is doubtful if suturing the omentum is enough less serious to make it preferable to more radical operations. Combined with some form of anastomosis it is quite satisfactory.

No. LII. Female, thirty-nine years old, entered the City Hospital in August, 1901, with a history of persistent bleeding by mouth and rectum.

For two years previously she had been troubled with indigestion, but without symptoms as severe as the present. Two weeks before entrance she began to have severe pain immediately upon eating, and tenderness in the epigastrium, but without vomiting. She then limited herself to liquid diet, and forty-eight hours before entrance vomited and passed blood by stools. The vomiting had continued steadily up to entrance and she passed several bloody stools. There was considerable pain. She was markedly pale, with irregular, intermittent pulse, retracted abdomen, and some tenderness in the epigastrium. An operation before collapse had come on was advised.

At operation the stomach was opened and explored with the finger, and although it contained considerable liquid and digested blood no ulceration could be felt or seen, though all of its walls were not examined in the hurry of the operation. A button anastomosis was made and the abdomen closed. The patient, in poor condition at the start, stood the operation well.

The following day she still vomited blood and had five rectal hemorrhages, while the pulse and temperature steadily rose. The following day she had rectal hemorrhages, but without vomiting. Three days after operation she died, and partial autopsy showed that peritonitis at least did not cause death.

No. LIII. TIRRELL: Female, thirty-seven years old, entered the City Hospital, November, 1902.

About a year before this the patient had had uremia following childbirth. Then followed much vomiting, treated by lavage. At times she vomited retained food in large quantities. She entered the medical side and was under treatment for over a month, for dysentery and diarrhea, with relief. Improvement in her gastric symptoms followed lavage, but there was no gain in weight, and recently there had been a relapse of vomiting of large amounts of undigested food, but without blood. The patient was in poor condition, emaciated, and with plainly visible peristalsis.

The gastric contents showed no free hydrochloric acid nor lactic acid. The stomach, apparently dilated at entrance, resumed its normal limits gradually, but in spite of that, the symptoms referred to grew worse and she was transferred to the surgical service for operation.

At operation there was no distention of the stomach, but the small gut was distended; there was marked spasm of the pyloric end of the duodenum, practically closing the lumen for several inches; no tumor nor scars were found, while a hurried examination of the abdominal cavity failed to show anything definite, the patient being too ill for extensive search. An anterior button anastomosis was made, the joints being reinforced with omentum. The wound was closed in layers. The patient came out of the ether well, but failed rapidly and died within twelve hours.

Partial autopsy showed tubercular colitis and tubercular ulcer of the duodenum.

No. LIV. Male, twenty-nine, entered the City Hospital in May, 1903.

The patient was a hard drinker and came in with delirium tremens. Eight years before entrance he is said to have had an attack similar to the present one, lasting four weeks, vomiting blood three times during the attack. Six weeks before entrance, after hard drinking, he vomited blood and was in an out-of-town hospital for a week, with cessation of vomiting at the time of discharge. Four days before entrance he had epigastric pain, but without vomiting of blood. There was marked tenderness in the epigastric region but under low, mild diet and rest the patient improved. Unwisely, operation was advised and performed. Nothing but thickening of the pylorus — but with free opening — was found. A posterior gastrojejunostomy by Mikulicz's method was done and the wound closed in layers.

The patient relapsed into his alcoholic condition a few days after operation, became delirious, cynotic, and died four days after operation. This patient should have been left alone.

No. LII died as a result of operation done early in my series when the technic was much less simple than at the present time.

No. LIII was hardly a case for interference and operation was offered as a last resort.

No. LIV should never have been touched. It was bad judgment to have attempted anything surgical.

No. LV. Male, fifty-three years old, referred by Dr. Pierce of Norfolk Downs.

For a number of years he had had epigastric pain, and a year ago began vomiting after supper. Six months later the vomiting attacks came on more often and five days before I saw him he had had copious vomiting, preceded by severe gastric pain. Always constipated. The amount of vomitus was excessive. He had never noticed blood nor coffee grounds. He had lost much weight and recently had lost much strength.

Examination showed a retracted abdomen, with dilated stomach, but without definite tumor.

At operation, December, 1902, at the Quincy Hospital, in the front wall of the pylorus and extending in under the surface, were old scars and adhesions. The tissues about the pylorus formed a swelling the size of a hen's egg, but without induration, like a malignant growth. The pyloric opening was practically closed. This mass was adherent to the right lower edge of the lesser omentum, the duodenum lying behind some sheets of peritoneum that were apparently adhesions. The duodenum was freed and a gastro-duodenostomy by Finney's method was done. The pylorus was so adherent that, in trying to separate it, the cavity was torn into and had to be temporarily closed with catgut. Abdominal wound closed, allowing for a temporary wick drain to the line of sutures. Patient in good condition at the close.

He vomited more or less for a day or two after operation and inhaled some vomitus, which started up a bronchitis, to which he rapidly succumbed. Examination through the wound showed no peritonitis.

Although this patient died from inhalation pneumonia the operation must take the blame for the result. At present, I am sure the outlook would be far more favorable.

No. LVI. Male, forty-five years old, referred to me by Dr. Lawrence of Brockton.

Three years ago he had an attack of pain in the stomach, without vomiting, lasting for three months. A year later he had a return of the symptoms, lasting the same time. One year ago the symptoms returned for the second time and persisted up to the time that I saw him, in September, 1903, when I found pain in the left loin and hypochondrium, with eructations of gas, relieved by the use of the stomach tube for the last two or three months. For over a year, after eating anything he had complained of pain, lasting two or three hours, without nausea, and he had been very much constipated for months. He stated that a year ago he had tarry stools. When the pain in the stomach began he would lie down with relief. There was no history of retained food. He had lost much weight in the last year. There was some dilatation of the stomach, with slight tenderness, and, possibly, thickening under the left hypochondrium. Nothing suggestive of an aortic lesion was found in examination of the chest, and hence the aneurism from which he died was entirely unsuspected.

Examination of the stomach contents showed absence of free hydrochloric acid and much diminished combined hydrochloric acid.

At operation, at the Carney Hospital, the liver and stomach were both found prolapsed, with a slight thickening at the pylorus. The gastrohepatic omentum was shortened and a posterior gastro-enterostomy, with clamps and sutures, was made. A little blood was found within the stomach at the time of operation. The liver was sutured up into place, and the wound closed in layers. The patient progressed satisfactorily and was beginning to eat, when, five days after operation, he suddenly vomited up a large amount of fresh blood and died.

Autopsy showed a ruptured aneurism of the thoracic aorta, emptying into the pleura. There was no gastric ulcer to be found.

No. LVII. Male, sixty-five years old, had suffered from stomach trouble for six years, beginning with sharp, stabbing pain in the right side. He had vomited much and thought he had vomited coffee grounds. He had lost much weight in the last six months and was unable to work. On entrance to the Carney Hospital, in October, 1903, he was markedly emaciated and starved. Operation was urged to prevent death from starvation if possible.

At operation, in the region of the duodenum and gall bladder there was a general mass of old adhesions, the gall bladder being so covered over that it was not distinguishable. In the adhesions were old scars as though from a perforating ulcer. Nothing abnormal was felt in the stomach or elsewhere in the abdomen. The pylorus when relaxed admitted the finger, but it quickly thickened spasmodically and formed a hard, nodular tumor. A posterior gastro-enterostomy, with clamps and suture, was done and the wound closed. After operation the patient continued vomiting more or less steadily, growing weaker, not deriving any benefit from his rectal or stomach feeding, when, finally, the vomiting became persistent and ten days after operation he died.

Examination through the wound showed that there was no peritonitis nor obvious cause for death.

The outcome of this case was not anticipated before operation. It may have been a case of "vicious circle," but as we watched him it seemed more like death from prolonged starvation from which the patient was too weak to react. Technically the operation seemed most satisfactory, but in the light of a few other bad results it is fairer to ascribe the result to some operative defect.

No. LVIII. A boy three months old, entered the Carney Hospital in November, 1903. Referred to me by Dr. C. W. Townsend, who has reported the case in full in the Boston Medical and Surgical Journal for Feb. 11, 1904.

A brief history of the case showed almost persistent vomiting, with occasional intervals, from the time he was three weeks old, progressive emaciation and starvation, and a dilated stomach. Operation was advised as a last resort.

The stomach was found dilated, and the intestine collapsed. At the pylorus was an oval, fibrous, solid tumor, half to three fourths of an inch in diameter, apparently almost or completely obstructing the lumen. A posterior gastro-enterostomy, with clamps and sutures, was done, the omentum and mesocolon being found mere films, without trace of fat. Wound closed in layers. The baby recovered from the operation and seemed to hold its own, taking small amounts of hot water by mouth and retaining this fairly well, but eighteen hours after operation it vomited about four ounces of digested blood and bile and collapsed. Later it vomited more dark blood and bile and died twenty-four hours after operation.

Pathological report showed a hypertrophy of the pylorus, with the associated narrowing of its lumen.

This case suggests strongly the wisdom of early interference in infants with persistent vomiting not explainable on dietary errors. In such cases

the operation is probably very safe, and it is most probable that these cases are more common than the general practitioner realizes.

No. LIX. Male, twenty-six years old, was seen with Dr. McCook at Hartford a short time before operation. The history obtained at that time pointed to acute gastric ulcer, and operation was advised. The full history obtained later, through the courtesy of Dr. McCook, is as follows: Nine years before he had had a sharp attack of indigestion with vomiting and abdominal pain. In 1898 he was in bed three months with inflammatory rheumatism, and for the following six months he had a number of fainting attacks. In 1899 there was cough and expectoration, for which he went to Kentucky. He recovered and remained well until seven weeks before I saw him, when diarrhea began, lasting a couple of days, followed by vomiting, which had persisted up to the time of operation. The vomiting came on at variable times after eating, and he could hold nothing on his stomach except hot milk. Constipation was marked during the attacks of vomiting. For two weeks he had complained of dull pain in the abdomen, with occasional sharp pain in the right epigastrium. Once he noticed some bright blood in the vomit and had noticed, also, dark stools. There was slight tenderness over McBurney's point, loss of weight, and a normal white count and urine. Stomach contents showed absence of hydrochloric acid and presence of lactic acid, absence of blood, a little mucus and some bile. At consultation, when I saw him, the diagnosis lay between gastric ulcer, with pyloric obstruction, and a gastric neurosis.

At operation at the Hartford Hospital, an exploration of the gall bladder and appendix regions, etc., were negative. No ulcer could be felt in the stomach. The pylorus was open. Nothing could be felt in the duodenum. A posterior gastro-enterostomy was made by Mikulicz's method and the abdominal wound closed.

There was no shock following the operation, but vomiting began at once. He was kept on rectal feeding for five days. Then boiled water was given him by mouth, which he vomited at once. Delirium then began and continued until death, eight days after operation. On removal of the silkworm gut sutures a small stitch abscess was found. Otherwise the wound healed well. The temperature rose at once after operation and continued at about 101° until just before death, when it rose to 104°. The pulse, 90 to 100 for the first week, rose to 120 and thence higher until death.

An examination was allowed only through the wound. A little bloody serum was found in the abdominal wound. There was no peritonitis. The joint was tight. No ulcer of the stomach was found and no pyloric stenosis. The kidneys were slightly congested, and there were a few new adhesions (probably from operation) near the umbilicus. The appendix showed chronic inflammation, the tip being under the border of the ribs; and from the appendix an old fibrous band extended to the side of the abdomen under the liver, which looped up the appendix. The exact insertion of this band could not be made out with the limited incision permitted. Unless this band from the appendix, which was overlooked at the time of operation, was the cause of the vomiting, through constriction of the gut, there is no way to explain the symptoms nor the cause of death. The intestine at operation was not distended, but as in case No. 67 it may be possible that the vomiting was reflex from the dragging of the small gut, but without constriction sufficient to produce obstruction.

No. LX. Female, twenty-eight years old, entered the City Hospital in September, 1901. For a number of years she had had stomach trouble, with vomiting an hour or two after eating, nausea and epigastric pain. This had persisted up to the present time. Three years ago she had a severe epigastric attack, vomited blood after eating and passed blood by rectum. This attack was repeated two months, three weeks, and four days, respectively, before she entered the Hospital. There was a history of vomiting retained blood. Almost every night after midnight she would vomit excessive amounts. She had lost weight, and for nine months there had been marked tenderness in the epigastrium. Recently she had noticed a bunch in the same region. Analysis of the stomach contents showed dilatation, stasis, free hydrochloric acid, and a small amount of lactic acid. She had previously had a laparotomy for ovarian trouble.

At operation the omentum was found adherent to the old laparotomy wound. The stomach showed nothing definite on the outside. A posterior anastomosis was made with silk and catgut by the old method. Exploration showed that the pylorus admitted the finger and no ulcers could be felt on either wall. Abdominal wound was closed. After operation she vomited somewhat but less than before, and nearly three weeks later developed a phlebitis of the left leg. A month after operation, as she still had occasional vomiting, the stomach was washed out and analysis showed that there was still dilatation and stasis, no blood, no free hydrochloric acid, and diminished combined hydrochloric acid. Two months after operation she was discharged, a little improved, having refused to have any further interference. Taken in conjunction with several later cases the possible effect of an omentum adherent to the scar of a former laparotomy must be considered in diagnosticating gastric lesions.

No. LXI. Female, twenty-eight years old, was referred to me in October, 1902, by Dr. Smithwick. She was a neurotic woman, nearly unbalanced mentally, and the entire history must be taken with considerable latitude.

She had complained for five or six years of headache and constipation without definite stomach symptoms. She had never had vomiting, nor lost weight, and complained more of general debility and constipation than anything. Examination showed dilatation of the stomach. As there was a fairly definite specific history the patient was put on iodide of potash and operation advised against. In August, 1903, she returned again, having received benefit from the iodide for a while, followed by relapse, with symptoms worse than ever. An exploratory laparotomy on the basis of probable ulcer of pylorus was advised, but not urged.

At operation, at the Boothby Hospital, the stomach was found dilated. At the pylorus, on the proximal side, and extending for about an inch in the greater curvature, marked induration could be felt. In the lesser curvature was a small nodule suggesting another ulcer or scar. The pylorus itself was not narrowed. There were large lymph nodes along the lower border. Elsewhere the abdomen was negative. A posterior gastro-enterostomy by Mikulicz's method, but using clamps to control hemorrhage and leakage, was made. The abdominal wound was closed in layers. She convalesced well, had no nausea, and was discharged about ten days after operation.

Later it was learned that the symptoms had relapsed and that the operation had been of no benefit, as might have been anticipated from the first. At present she is receiving marked benefit from the treatment of one of our irregular practitioners and considers herself nearly well.

(To be continued.)

Medical Progress.

PROGRESS IN GASTRO-INTESTINAL DISEASES.

BY ELLIOTT P. JOSLIN, M.D., BOSTON.

(Concluded from No. 6, p. 163.)

COMPLETE REMOVAL OF THE STOMACH.

THE following is taken from a review of Boeckel's [7] book on "De l'Ablation de l'Estomac." At the date of publication the number of cases reported was 48 and of these the result was unknown in 2. Of the remaining 46, 18 died and 28 recovered, giving a mortality of 39.1%. In 9 cases collapse was the cause of death, in 7 purulent peritonitis, and in one pneumonia. Seven of the 28 patients who have recovered are not available for a final report. Of the remaining 21, 11 have died of recurrence after an interval varying between five months and five years; one died of intestinal obstruction without recurrence seven and a half months after the operation and another in two years of phthisis. Eight of the patients still enjoy the best of health. In the duodenum near the gastro-intestinal anastomosis a pouch forms which gradually dilates and to a certain extent acts as a new stomach. Digestion goes on without disturbance and there is a gain in weight. The reviewer strongly recommends Boeckel's book.

SUBCUTANEOUS FEEDING WITH FAT.

Winternitz [8] reaches the following conclusions as the result of a series of experiments in which fat was subcutaneously injected. Fat so administered is absorbed and used in the metabolism. In the course of time absorption is complete, but the quantity of oil absorbed after an injection of five hundred gm. within five days does not exceed 2 gm. to 3 gm. per day; indeed during the first week the daily amount absorbed is notably less. Consequently, months pass until complete absorption takes place. Therefore, from his experiments, Winternitz concludes that the fats are not adapted for subcutaneous feeding.

THE INFLUENCE UPON FAT OF GASTRIC DIGESTION AND THE TREATMENT OF HYPERACIDITY.

It is known that fat and sugar solutions will diminish the secretion of gastric juice. According to Pawlow this is brought about reflexly by the contact of the fat with the mucous membrane of the duodenum. Clinically, Aldor and Strauss found that butter and cream caused a lowering in the amount of free hydrochloric acid as well as of the total acidity and so recommended these foods as the best dietetic treatment of hyperacidity of the stomach. In a similar manner other observers have shown that the addition of fat to the diet not only decreased the amount of hydrochloric acid, but the quantity of gastric juice as well. Buch demonstrated this in hyperacidity. As a rule milk fat has been used therapeutically, but various authors have shown the equally good effect of olive oil. Influenced by these facts Walko [9] has made a systematic study of the question. His experiments were of the following character: A test meal consisting of 100 gm. bread and 400 cm. water was given, and the free HCl. and total acidity determined after a given interval. On another occasion the same meal was repeated, but this time with the addition of oil varying in quantities from 50 cm. to 100 cm. The analyses showed that the olive oil in the small as well as in the large doses delayed the secretion and at the same time confined the per cent of acidity within lower limits than was the case when no oil was administered. Clinically it was of interest that the large doses of oil did not necessarily mean a much larger decrease in acid than small doses. It is true that these amounts of oil delay digestion or rather cause the meal to remain one to one and a half hours longer in the stomach. However, it should be borne in mind that the oil remains no longer than would carbohydrates or proteids of equal nutritive value. And further the delay is not proportional to the quantity of fat given.

Much interest has been taken in recent years in the digestion, or more precisely the splitting up of neutral fat in the stomach. Evidence has steadily accumulated to show that the gastric juice is not passive in this regard. Walko proved that even as much as 77% neutral fat might be broken up into fatty acid by the gastric juice. The amount of fat splitting ferment in the stomach is greatest with a milk diet, less with meat and least of all with carbohydrates. Walko also studied the interesting question of the influence of olive oil on the simultaneous digestion of other foods in the stomach. His results are convincing that the oil decidedly favors the digestion of proteids and starches. By its action the extra quantity of starch converted into sugar is directly favorable to the treatment of hyperacidity as sugar is known to decrease the secretion of hydrochloric acid.

Bone marrow from its high content of fat acts similarly to olive oil and is therefore strongly recommended by Walko.

The clinical results obtained by Walko more than fulfilled the expectations which the experiments, above cited, suggested. In hyperacidity of the stomach, the acidity was lowered and the symptoms abated under the administration of the oil in doses of 20 cm. to 200 cm. given through the tube, or simply drunk by the patient. The oil was given a few mornings in succession after the test breakfast had been thoroughly removed. Concurrently the constipated bowels became loose, but, after a few days, regular, and the patient gained in weight. In dilatation of the stomach with hyperacidity the oil worked remarkably well. The acidity decreased, the motor function improved and with it the gain in strength and, as above, the bowels became regular. Walko further recommends the use of oil in ulcer of the stomach

[7] Paris, 1903. Felix Alcau. Reviewed Cent. f. d. Grenz. d. Med u. Chir., 1903. Bd. vi, p. 790.
[8] Zeit. f. Klin. Med., 1903. Bd. L., p. 80.
[9] Zeit. f. Heilkunde 1903. Bd. xxiv, p. 142.

because of its unirritating qualities, its high nutritive value, its restricting influence on the hydrochloric acid secretion and its cure of the constipation.

The remainder of the article is devoted to the discussion of the action of atropin, bicarbonate of soda and Carlsbad salts in the treatment of hyperacidity, and an analysis of the evidence in favor of a carbohydrate or proteid diet. He reaches the conclusion that the fat diet is the preferable method of treating the condition.

Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

PROCEEDINGS OF THE TWENTY-FIFTH ANNUAL MEETING, HELD IN ST. LOUIS, JUNE 14, 15, 16 AND 17, 1904.

(Continued from No. 6, p. 166.)

REMARKS UPON CERTAIN UNAVOIDABLE POST-OPERATIVE CALAMITIES IN ABDOMINAL SURGERY.

DR. MAURICE H. RICHARDSON of Boston read a paper with this title, which was based upon his experience more especially in abdominal surgery, and related exclusively to fatal cases. Four classes of calamities were considered: (1) Suppression of urine; (2) inexplicable deaths, with symptoms of local and general sepsis, but without any detectable bacterial source; (3) uncontrollable capillary hemorrhage; (4) pulmonary embolism.

Suppression of urine could be regarded as an unavoidable accident only when it took place after the urine had been shown to be normal by the most searching study. The influence of ether alone in causing suppression after operations was not regarded as sufficient and sole cause of this calamity. It was doubtless true that failure of the kidneys properly to perform their function was due to some pathological change in the secreting substance; if not a pathological change, a tendency to glomerular irritation or real inflammation, but a change or tendency which could not be detected beforehand. Such suppression of urine, however, might be prevented by the avoidance of all but imperative operations whenever there was the least evidence of renal disease, especially an insufficiency in the elimination of urea. Renal suppression was not believed by the writer to be the result of etherization alone.

In certain very rare instances death had taken place after abdominal operations without any pathological cause whatever. In one illustrative case, after an aseptic, though difficult and bloody operation, the patient presented the typical clinical picture of fatal general peritonitis. The pathologist at the Massachusetts General Hospital could find no evidence whatever of bacterial infection at the autopsy or in the laboratory. That there was an infection the essayist had no doubt, but by a germ which produced none of the usual physical signs of sepsis, which failed to grow on ordinary media.

Uncontrollable capillary oozing might be regarded as unavoidable, and beyond the power of prediction only when it took place after careful examination of the blood with reference to its coagulability, and other possible evidences of a tendency to bleed. Capillary hemorrhage from jaundice might be in certain instances uncontrollable. It could be regarded as uncontrollable only when operation must be performed in spite of the evidence of the tendency to hemorrhage. The coagulation tumor did not reasonably assure safety against bleeding, even if it was shown experimentally to be brief. The author's last fatal hemorrhage in jaundice took place from the capillaries of the lesser curvature of the stomach, remote from the operation area, though the blood coagulation tumor was perfectly satisfactory. In another case a fatal and uncontrollable capillary ooze followed an operation upon the common duct after a year of biliary fistula. In this case no bile had entered the intestine during the existence of the biliary fistula. The most frequent of such rare calamities was sudden death from pulmonary embolism. The cause of death could neither be predicted nor prevented. It occurred with no peritonitis. The probability of embolism being the result of a phlebitis was considered. In the author's experience, in a considerable number of deaths there were no premonitory symptoms whatsoever, while in cases of phlebitis, definite and unmistakable, no such accident occurred. Pulmonary embolism had been observed most frequently after pelvic operations upon women with large uterine or ovarian tumors, and especially in women long exsanguinated by fibroids.

PAPILLARY CYSTS AND PAPILLARY TUMORS OF THE OVARIES, WITH CONSIDERATION OF PROGNOSIS AND TREATMENT.

PROF. SAMUEL POZZI of Paris, France, read a paper on this subject, in which he summarized as follows:

"1. Papillary tumors of the ovary, cystic or solid, must not be considered as always malignant. Some of these tumors never undergo malignant degeneration, and do not relapse after removal. Some relapse after a long time, and locally without metastases.

"2. A careful distinction must be made between carcinomatous generalization, which takes place through the lymphatics and blood vessels, and simple grafts which result from contact or from the growing over the peritoneum of detached papillary vegetations of the ovary. This process is benign and can be compared to the grafting of papillomas and warts of the skin.

"3. Some of these tumors undergo a malignant degeneration which is for some time limited, but can later extend all over the mass, and which at last brings on a real generalization with cancer metastases. Before this last period, and at the outset of the malignant transformation, it is quite impossible to discern it with the naked eye, and microscopical investigations are needed. The prognosis is always uncertain in operations of this kind before a thorough pathological examination. Even such examination may lead to misinterpretation, if it has not been carried all over the tumor, for the degeneration may be limited to a small part of the growth.

"4. When positive symptoms of malignancy are absent, such as cancerous cachexia, or visceral metastases, operators must always treat these tumors as if they were benign, and proceed to remove, to the largest extent possible, the neoplasm. The disseminated growths or even small parts of the papillary tumor detached and lost in the peritoneal cavity may disappear. In other cases they may be the origin of local recurrence. But these relapses can be treated successfully by secondary operations.

"5. Frequency of successive invasion of both ovaries by papillary tumors furnishes an indication to remove the adnexa on both sides, even if one is still healthy, at least in women who are near the change of life. In young women it would be better to preserve a non-diseased ovary.

"6. In bilateral papillary tumors the operative technic can be greatly improved by performing partial or total hysterectomy, according to the case.

"7. Drainage is not necessary when the cysts have no outside vegetations, and when there is no ascites. But in case ascites exists for some time, it would be well to drain the peritoneal cavity. Incomplete removal, or even an exploratory section, in unoperable cases, is often accompanied by a real diminution of ascites, with local and general improvement."

ANKYLOSIS TREATED BY ARTHROPLASTY, CLINICAL AND EXPERIMENTAL.

Dr. John B. Murphy of Chicago spoke on this subject. He mentioned three types of ankylosis, namely, ankylosis from periarthritis, ankylosis from capsular lesions and bony ankylosis.

Bony ankylosis could be relieved. Tissue could be interposed to prevent the re-establishment of bony union, and with the recognition of the changes which occurred in fat close to the aponeurosis, a joint could be produced with a serous-secreting surface. His experimental work had shown that after the removal of the hip joint in a dog, cartilage, synovial membrane and the articular surfaces in their entirety, with replacement of tissue in the acetabulum, and replacement of bone again, he had produced a typical synovial membrane in the sense of a hygroma. In the production of hygroma pressure on fatty tissue had a tendency to bring about a coalescence of the small fatty capsules. The shaft of these capsules produced a serous secretion, and there was developed a condition which was seen in housemaid's knee, over the trochanter of the boiler-maker, and over the wrist of the stonecutter. A serous-secreting surface was brought about. This could be done in a joint. The surgeon could restore joints to practically their normal condition.

The first case he reported was one of bullet wound of the abdomen. The bullet passed through the abdomen a little to the right of the median line, passed across the abdomen, perforated the intestine eight times, fractured the head of the femur, lodged in a pocket, remained there, worked its way out through ulceration, and was finally voided through the intestine. The wounds in the intestine were sewed up, and the patient recovered, with a sinus. The speaker saw the patient with ankylosis of the leg at right angles. He passed around a skiagraph which showed bony union. After removing the head of the femur transperitoneally, curetting and removing the bony debris from the ilium, the wound was allowed to heal, and a plan was devised for the restoration of the joint and the relief of deformity. He decided that it was necessary, first, to expose the joint and to secure bony tissue for the new head. Second, it was necessary to interpose between the fragments not only muscle, but fascia, covered with fatty tissue, because the fatty tissue here, subject to pressure, like the fascia lata of the trochanter, formed hygromata. A U-shaped flap was made, carrying with it fascia lata and all the superficial tissue and skin, then the joint sawed from around the trochanter major. None of the muscles was divided. A circular chisel was used to chisel out the bone in all directions, and with the assistance and leverage of the femur and chisel, a fracture was produced at the base of the cavity, and the head, which was new bone formation, as the original head was removed, was thrown out in connection with the neck, rounded off with bone-cutting forceps, and curette used to enlarge the cavity. The next step of the operation was to separate the fascia lata with its fat and a few fibers of the gluteus muscle; a flap was swung in behind the muscular attachments, and the trochanter major put in around the head of the femur and sewed to the neck. The neck was made short to prevent reunion of the fibrous portion of the capsule which remained, because if the capsule remained in its fixed position, the ankylosis would continue, and this was one of the practical points he derived from this particular case. The trochanter major was sutured to the neck, the head replaced, the trochanter major rounded off, the flap turned down, and the wound drained. The result of the operation was ideal. Dr. Murphy passed around a photograph showing the patient as he stood in the erect position, and the degree of flexion obtained at the end of four months after operation. The patient now had perfect motion and flexion.

He mentioned other cases on which he had operated by this method, with gratifying results. The method was largely intended for the treatment of joints with ankylosis.

NEW AIDS IN DIAGNOSIS OF SURGICAL DISEASES OF THE KIDNEY AND THEIR VALUE.

Dr. A. T. Cabot of Boston read a paper on this subject. His conclusions from the experience he had had and from his study of the work of others were that segregation of the urines was of great use sometimes in deciding the question as to which kidney was diseased, or even as to which was most affected. Determination of the functional capacity of the kidney by testing the elimination through it might be of assistance by adding strength to what evidence we had, but would be often misleading if too implicitly relied upon for deciding operative measures.

REPORT OF A CASE OF ACUTE PANCREATITIS ASSOCIATED WITH GALLSTONES.

Dr. James Bell of Montreal said that the demonstrated facts in his case were: (1) That in March, 1898, there were all the characteristic lesions, as well as the signs and symptoms, of acute pancreatitis, and at the same time an apparently quite healthy liver and gall passage, with two or three stones in the gall bladder. (2) That all signs and symptoms of pancreatitis disappeared, the patient recovering, and considering himself quite well until nearly two years later, when a new train of symptoms developed, which were characteristically those produced by gallstones. (3) Three years after the attack of acute pancreatitis it was demonstrated that while extensive and serious pathological changes had taken place in the gall bladder and bile ducts, all local signs of acute pancreatitis had, during the same period of time, entirely disappeared (subperitoneal fat necrosis and swelling of the pancreas); that was to say, that acute pancreatitis developed before there were any pathological changes in the gall bladder and bile ducts, and that while such changes were taking place, the pancreatitis was recovered from.

These facts would seem to be at variance with modern views of the etiology of acute pancreatitis which tended to attribute this condition in a general way to a pathological change in the common bile duct due to the passage of gallstones from the gall bladder to the intestine.

TREATMENT OF CONGENITAL CLEFT PALATE: A PLEA FOR OPERATIONS IN EARLY INFANCY.

Dr. Truman W. Brophy of Chicago read a paper, by invitation, on this subject. After referring to the work of Lamonier, Kirmisson, Roux and many others in this field, the essayist stated that after having studied carefully the literature and the methods pursued by other operators, he had endeavored to over-

come the objections and to avoid the difficulties with which the older surgeons contended, and he was satisfied that the most desirable time to select for operating was within three months after birth. In operating at that time one was able to secure more satisfactory results than later in life, and avoided the objections usually raised by surgical writers. He believed in operating at as early an age as practicable after birth, preferably within three months, and his experience of twenty years in operations performed for the closure of cleft palate, at from ten days to fifty years of age, including 927 operations, had more and more justified the practice.

Among the advantages mentioned in favor of early operations were the following: Surgical shock was less because the nervous system of a young child was not well developed, and it was not, therefore, capable of receiving the same impressions that it would late in life. Furthermore, young children usually reacted better. All mental apprehensions were eliminated, and alarm and dread were among the most powerful factors in producing shock. Following early operations there was much less deformity, for all the tissues, bony as well as soft, developed naturally and according to accepted types. When the operation was postponed for a few years, it was very difficult to secure as good results. When the operation was made in early infancy, the parts were sufficiently developed to give possibility for normal speech when the child had reached a speaking age.

The author described his method of operating on cleft palate in detail, a description of which has heretofore been published in both dental and medical journals.

In conclusion, the author stated that if operations were made later in life the patient should be placed under the instruction of one who had the perseverance, the ability and patience to teach him how to overcome the defective speech which he had acquired.

THE EVOLUTION OF SURGERY.

DR. J. EWING MEARS of Philadelphia read a scholarly paper with this title. He divided this unfolding of surgery into three periods of time: (1) That which extended from the beginning to the time of Ambroise Paré, 1517–1519; (2) the use by John Collins Warren (1846) of ether as an anesthetic in surgical operations, and (3) the discovery and introduction into general use by Sir Joseph Lister (1860–1875) of the antiseptic treatment of wounds. Each period was taken up and considered in a masterly manner.

(To be continued.)

Recent Literature.

Air, Food and Exercises; an Essay on the Predisposing Causes of Disease. By A. RABAGLIATI, M.A., M.N., F.R.C.S. Edin., Honorary Gynecologist, and Late Senior Honorary Surgeon, Bradford Royal Infirmary; Consulting Surgeon to Bingley Hospital, to Bradford Children's Hospital and to the Bradford Home for Cancer and Incurables. Third edition, greatly enlarged and almost entirely rewritten. New York: William Wood & Co. 1904.

The author says in his preface that "this book is, then, written frankly for the public, in the hope that its perusal may simplify and clarify their ideas upon the subject of disease." That it has reached a third edition would indicate that it has had readers and that the public after two editions, is still in need of clarification.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, AUGUST 18, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

THE BRITISH MEDICAL ASSOCIATION.

THE seventy-second annual meeting of the British Medical Association was held at Oxford, and, so far as one may judge from the reports which have come to us, the meeting was peculiarly successful from every point of view. Not a little of the interest was derived from the fact that Oxford was chosen as the place of meeting, for the first time since 1868, a period during which many changes have taken place at the university, and particularly in those branches of science connected with the early training of the medical student. Dr. William Collier, who delivered the president's address, took for his subject, "The Growth and Development of the Oxford Medical School," and discussed the historical development of medical work at Oxford in a way which must be of interest to physicians outside of the United Kingdom. Dr. Collier is of the opinion that the university has been benefited by the establishment of the medical school on a modern basis, and particularly he finds the influence of the university student on other medical students of the metropolitan schools of very distinct benefit. It is in general the question of a preliminary university training to which so much attention has of late years been given in this country. Considering the previous meetings of the association in Oxford, Dr. Collier called attention to the fact that in 1835 the association brought together 300 members at Oxford; a second meeting, numbering 1,630 members, was held in 1852. In 1868 the association visited Oxford for a third time, the membership having risen to 3,672. Now the membership of the association is upwards of 19,000, when for the fourth time it has met in Oxford.

Sir William Selby Church gave the address in medicine on the important topic of "Our Sanitary Needs with Special Reference to the National Health." The address was in a measure retrospective, but brought out the important present day necessity of increasing attention to the laws of hygiene, both in urban and rural districts, begging finally that the British Medical Association would use its influence to impress both the public and the government with the desirability of a physical census of the nation being taken from time to time, and the necessity of the registration of the physical condition of children on whom the future depends.

The address in surgery by Sir William Macewen was eminently practical in its bearings, taking up in the first place the important question of the localization of brain abscess arising from primary pyogenic cranial lesions, a matter concerning which no one could speak with more authority. Few matters in cerebral surgery are more important than this, owing to the absolute necessity of a correct diagnosis, and the possibility of an immediate and complete relief. We commend the succinct statements made in this connection to aurists and other surgical readers. The remainder of the address was taken up with a discussion of a respiratory and cardiac reflex, and to the choice of ligature and suture material, the latter a matter upon which Mr. Macewen's opinion will be welcome.

An innovation at this meeting of the association was the introduction of a popular lecture, given in the town hall by Dr. Ferguson, attended by a large and appreciative audience. Dr. Ferguson spoke in a practical fashion upon disease germs, and described in language easily comprehensible to the uninitiated certain facts regarding the life history and the effects of various organisms. This plan, adopted this year for the first time, as we understand, by the British Medical Association, is worthy of imitation. That the laity should know certain facts regarding medical matters and hygiene is becoming more and more apparent, and that such knowledge should come through the auspices of a recognized medical body is also fitting.

The honorary degree of D.Sc. was bestowed upon the following physicians: Dr. Clifford Allbutt, Mr. Andrew Clark, Dr. T. D. Griffiths, Mr. Jonathan Hutchinson, Sir William Macewen, Sir Patrick Manson, Sir John William Moore, and Dr. William Osler. Professor Love of the University of Oxford, in presenting the degree to Dr. Osler, spoke as follows:

Among those who apply the results of modern science to the investigation of the causes and the cure of diseases, few have attained greater distinction than William Osler. By his professionial teaching, first in Montreal, and afterwards in Baltimore, by his writings, which deal partly with questions of abstract science and partly with questions concerning the practice of medicine, by his skill as a physician, he has been for many years a leading exponent of the principle that the art of medicine should be based upon the most exact scientific knowledge of the day. For his work in exemplifying this principle, as well as for the merit of his contributions to science, he was elected a Fellow of the Royal Society. In him also we welcome a representative of one of those daughter States which are the pride of the mother country — the Dominion of Canada — and also of that great Republic of the West whose people, bound to us by the closest ties of kinship, are also among our best friends.

AN OUTBREAK OF TYPHOID FEVER.

A SERIOUS outbreak of typhoid fever has occurred in what is known as the Bedford Park section of the Borough of the Bronx, New York, and it is stated that as many as forty-two cases have been discovered in one block. The existence of the trouble had been known for some little time to the Health Department, which had been carrying on an investigation quietly, in order not to unnecessarily alarm the people of the neighborhood; but it was not until Aug. 9 that the facts were made public. On that date a corps of fifty medical inspectors was detailed for the work of preventing the further spread of the disease. It appears that the outbreak has been successfully traced to a spring, the waters of which form a creek which flows through the great reservoir for Croton water, now in process of construction on the site of the old Jerome Park race-course. All of the typhoid patients, it is said, partook of this water, which has been shown to be contaminated. It is a rural neighborhood, and many of the residents have never had the Croton water in their dwellings, and depended entirely on the spring water for cooking and drinking purposes. In many instances, also, the houses have not been connected with the city sewers and have cesspools in their rear. A considerable number of the cases are among Italians, of whom there is a colony of over a thousand persons, the men of the families being engaged in work on the new reservoir.

This epidemic, which no doubt will be speedily checked, is another example of neglect of proper precautions, as all of the recent typhoid epidemics have been. It also shows that, complete

as our knowledge is of the methods of dissemination of this disease, an absolutely constant vigilance is requisite to prevent its appearance in epidemic form.

ANNUAL ENCAMPMENT OF THE GRAND ARMY OF THE REPUBLIC.

BOSTON this week is the center of unusual midsummer activity owing to the presence in the city of the national Grand Army of the Republic encampment. This is presumably the last time that Boston will have the opportunity of seeing face to face the men who took part in the Civil War. Young as many of the soldiers were who enlisted and fought during the period from 1861 to 1865, the lapse of time has led to the inevitable result that many who are left are far advanced in years and show the decrepitude which comes from age as well as from wounds and injuries received in active service. Inspiring, therefore, as this occasion is likely to prove, there is associated with it a sense of sadness in that the actual participants in the War of the Rebellion will soon give place to men for whom the war is a remembrance simply and not an actual experience.

MEDICAL NOTES.

APPOINTMENT OF PROFESSOR OSLER. — It is announced that Dr. William Osler has been appointed Regius Professor of Medicine at Oxford University, succeeding Sir John Burden-Sanderson.

IMMIGRATION RULES. — Among other immigration rules about to be established, the following is of interest to the medical profession, that a law be enacted regarding medical inspection of the immigrants at points of embarkation for this country. It appears that during this past year several hundred immigrants, suffering from dangerous communicable disease, have been deported at the expense of transportation companies. Could a more stringent examination be made of persons before embarking, an element of danger and also a source of great inconvenience would be removed.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Aug. 17, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diptheria 35, scarlatina 7, typhoid fever 30, measles 8, smallpox 0.

BEQUESTS. — By the will of the late Miss Mary McGregor Means the sum of $3,000 is bequeathed to the T. Morgan Rotch, Jr., Hospital of Boston, and $2,000 to the House of the Good Samaritan. Anonymous gifts of $800 have also recently been given to the Boston Floating Hospital.

CONTAMINATION OF THE NEPONSET RIVER. — In accordance with an act of the Legislature in 1902, prohibiting the entrance or discharge of sewage into the Neponset River or its tributaries, and also of other substances injurious to public health, unless such substances be rendered harmless, the Massachusetts State Board of Health has taken action. Last summer the Board called the attention of property owners to the matter, to which it is said the latter have paid small attention. As a result, the Board now calls upon the attorney-general for an enforcement of its decree. Plants valued at from fifteen million to eighteen million dollars are affected by the order, but the manufacturers have never been willing to admit the right of prohibition of drainage into the river. It is, therefore, regarded as possible that the action of the Board may still be contested, although both law and right seem to be on the side of the complainants.

BACTERIOLOGICAL LABORATORY OF BOSTON BOARD OF HEALTH. — The Bacteriological Laboratory of the Boston Board of Health is soon to be transferred from its old outgrown quarters in the Sudbury Building, occupied since 1898, to the Boylston Chambers, 739 Boylston Street, where greater space and convenience have been secured. The existing arrangements for the free delivery daily up to 6 P.M. of cultures, through culture stations, will be continued exactly as heretofore. An addition to this has now been made, in that hereafter cultures too late for this free delivery may be sent for incubation, direct to the laboratory up to 9 P.M. The expense of delivering such late cultures will, however, rest with the physician, not with the culture stations. In addition to the diagnostic work, which has increased very much since the laboratory was established, the bacteriological examination of the Boston milk supply was begun in June, involving the examination of about six hundred samples each month.

NEW YORK.

MUZZLING OF DOGS. — On Aug. 10 State Commissioner of Agriculture Weiting issued an order, directing that in the city of Binghamton and in certain districts of Tioga, as well as Broome

County, all dogs should at once be muzzled or killed. A short time previously a rabid dog came to Binghamton from Oswego and is known to have bitten over fifty animals, some of which have since developed rabies.

Gift to Medical Department, Tulane University. — By the will of the late Alexander C. Hutchinson the bulk of his property, partly in New York and partly in New Orleans, is bequeathed to the medical department of Tulane University, Louisiana. The appraisement, just filed in the surrogate's office, New York, shows that the testator left a personal estate amounting to $1,020,000, in addition to considerable real estate, the value of which is not made public.

Accident to a Summer Tuberculosis Camp. — On August 10, what is described as a veritable whirlwind, came up from the sea at Coney Island and demolished the tents of the camp instituted this summer by the Association for Improving the Condition of the Poor, for children suffering from tuberculosis of the bones and joints. The frightened children were drenched by the rain which accompanied the wind, but the nurses soon had them housed in the neighboring building of the society.

Bequests. — Among other charitable bequests left by the will of the late Marcus Goldman of New York are $1,000 each to the Mount Sinai Hospital and the Montefiore Home and Hospital for Chronic Invalids. By the will of Simon Lavenburg of New York, who died recently in Germany, most of his estate is left to charity, on the death of his widow. Among the bequests are $5,000 each to the Mount Sinai Hospital and the Montefiore Home and Hospital for Chronic Invalids.

Quarterly Mortality Statistics. — The condensed quarterly report of the Bureau of Records of the Health Department, just issued, which embraces the three months ending March 31, 1904, shows that the number of deaths for the quarter was 21,590. This, on an estimated population of 3,838,024, gave a death-rate of 22.58 per thousand, as compared with the average number of deaths for the preceding five years of 18,301, which, on an estimated population of 3,540,664, gave a death-rate of 20.98 per thousand, an increase of 1.60 points. The reason for this increased death-rate, as compared with the quinquennial average, is given as due to three factors, namely: First, an immense increase in the prevalence of measles; second, a persistent and severe type of influenza; and third, the unusually severe winter. The first of these factors, measles, was the forerunner of an increase in the number of deaths from respiratory diseases among children, while the second and third factors contributed to the increase in the respiratory, circulatory, urinary and tubercular diseases among adults and old people. The increase of deaths from pneumonia was 1,437 above the quinquennial average. The increase in the number of deaths under five years of age was 546, at the ages five to sixty-five years, 2,177, and at sixty-five years and over, 546 above the quinquennial average.

Obituaries.

JOSEPH WIENER, M.D.

Dr. Joseph Wiener, an eminent retired New York physician, died from cardiac disease on Aug. 11, in the seventy-seventh year of his age. He was born in Hanska, Bohemia, April 5, 1829, and came to this country in 1849. For thirty-five years he was in active practice in New York, and during a considerable part of this time was an associate of the late Dr. William Detwold in the chair of military surgery at the College of Physicians and Surgeons, since affiliated with Columbia University. He was also one of the founders of the department of pathology in that school. Dr. Wiener was prominent in literary and artistic circles, as well as identified with many philanthropic and scientific movements. In 1885 he made the presentation speech on the occasion of the unveiling of the bust of Washington Irving in Bryant Park, New York.

WENDELL C. BOYD, M.D.

Dr. Wendell C. Boyd died at Linneus, Me., Aug. 3, 1904, aged thirty-four years and two months. The deceased was born at Linneus, received his early education in the district schools of his native town and at the Ricker Classical Institute of Houlton, Me., of which he was a graduate. He took his medical degree at the Harvard Medical School in the class of 1893, and at once entered into practice with his father, Dr. Robert Boyd, quickly meeting with success. He possessed a large fund of personal magnetism and professional tact which made his presence acceptable in the sick room, and in his early demise he leaves a great number of friends. He was twice elected and served two terms in the Maine legislature.

About one and one-half years ago he suffered from a severe attack of influenza from which he never fully recovered. Soon pulmonary tuberculosis developed, and after a vigorous fight of over a year his death quietly came.

The esteem in which he was held was attested by the large concourse of people who came to pay tribute to him in death. He leaves a wife

and one child, aged four years. His parents also survive him, with one brother (present Secretary of State of Maine) and one sister, the wife of Dr. W. N. Hand of Woodstock, N. B.

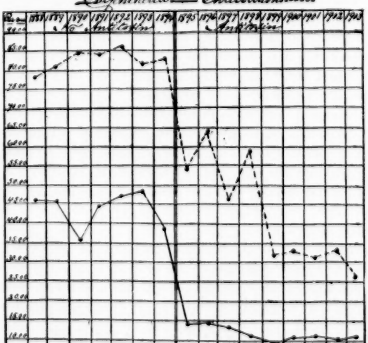
Miscellany.

DIPHTHERIA STATISTICS AT THE BOSTON CITY HOSPITAL.

The following figures show the number of cases of diphtheria treated at the Boston City Hospital, proper, and at the South Department from 1888 to 1903, inclusive. The number of cases of intubation for the same time is also shown. 1888 to 1894, no antitoxin. 1895 to 1903, antitoxin.

Year.	Number of Cases of Diphtheria.	Died.	Per cent. of Mortality.	Per cent. of Recoveries.	Number of Intubations.	Died.	Per cent. of Mortality.	Per cent. of Recoveries.
1888	382	176	46.07	53.92	100	78	78.00	22.00
1889	529	239	45.17	54.82	128	104	81.25	18.75
1890	415	151	36.38	63.61	93	79	84.94	15.05
1891	237	105	44.30	55.69	50	42	84.00	16.00
1892	387	185	47.80	52.19	65	56	86.15	13.84
1893	419	203	48.44	51.55	109	90	82.56	17.43
1894	698	266	38.10	61.89	89	74	83.14	16.85
Total,	3067	1325	43.20	56.79	634	523	82.49	17.50
1895	1455	207	14.22	85.77	118	64	54.23	45.76
1896	1889	276	14.61	85.38	224	145	64.73	35.26
1897	1387	181	13.04	86.95	146	67	45.88	54.11
1898	817	97	11.87	88.12	71	42	59.15	40.84
1899	1621	162	9.99	90.00	192	63	32.81	67.18
1900	2547	293	11.50	88.49	259	87	33.59	66.40
1901	1576	185	11.73	88.26	184	58	31.52	68.47
1902	1008	111	10.20	89.79	145	49	33.79	66.20
1903	1179	138	11.70	88.29	139	37	26.61	73.38
Total,	13479	1650	12.24	87.75	1478	612	41.40	58.59

Percent of Mortality of Diphtheria at the Boston City Hospital, proper, and at the South Department from 1888 to 1903 inclusive. Percent of Mortality of Intubations for the same time. 1888 to 1894 No Antitoxin. 1895 to 1903 Antitoxin. Diphtheria. Intubations.



Correspondence.

MEDICAL EXHIBITS AT THE WORLD'S FAIR.

St. Louis, Aug 15, 1904.

To the physician anticipating a visit to the World's Fair, mention of the various medical exhibits to be seen, both foreign and domestic, will not be out of place; and to his less fortunate brother a description of some of these will be of interest.

The medical exhibits, with the exception of those of the Marine Hospital Service, and the Medical Department of the Army and Navy, in the Government Building, are all in the Educational Building, arranged under the head of their respective states or nations. While all these exhibits are interesting and instructive, Germany, in the variety and scope of her exhibit, and the general excellence of its character, both in regard to the material displayed, and also as illustrative of the method of medical instruction, should certainly be given first place.

There are eight sections devoted to the medical sciences in the German exhibit alone. The first section, taking them in order, displays a heterogeneous collection, consisting chiefly of models and instruments, for the purpose of medical instruction. On entering the door, the first thing one notices is a case of instruments from the firm of Louis & H. Lowenstein of Berlin. Among these instruments may be mentioned Prof. Nitze's cystoscopic instruments, and a rubber phantom of the bladder by means of which the technic of cystoscopic instrumentation is taught the student. One other instrument should be mentioned, and that is an esophagoscope by Gluckmann, which is considered by the Germans to be superior to that devised by Mikulicz and Gottstein. Close by are phantoms for the purpose of passing the esophagoscope and for practising instrumentation by the aid of the laryngeal mirror. From the manufactories of Carl Zeiss, are some very beautiful optical instruments consisting of microscopes, dissecting microscopes, photomicroscopes and the various accessories.

The method of instructing the student in anatomy, the various steps of surgical operations, and the external appearance of disease is well shown by means of wax models. From Professor Passow's otological clinic at the Charité Hospital, Berlin, are models illustrative of the typical ear operations, the steps of a mastoid operation being especially well explained. A wax model for the purpose of explaining the manner of opening the frontal sinus is here displayed; also a model used in lecturing on the nose and accessory sinuses. The anatomical display consists of a complete dissection of the foot, showing the relations of muscles, tendons and ligaments, and a collection of tarsal bones.

From the studio of Fritz Kolbow of Berlin may be seen some very beautiful preparations in wax of tuberculosis and carcinoma about the face; also affections of the eye, such as tracoma, diphtheritic conjunctivitis, and gonorrheal ophthalmia. These preparations are so perfect that those not in the profession at first sight ask if they are not specimens preserved from the human body. On the wall of this room are many pictures taken at the Orthopedic Clinic at Berlin showing the effect of the subcutaneous injection of hard paraffin in plastic surgery with the most pleasing result. Pictures from the Medico-Legal Institute of the Royal University of Berlin show many of the conditions met with when death from violence occurs.

Passing on to the next section, one enters the x-ray and lecture rooms where exhibitions of the Roentgen rays are given. The next six sections contain the main exhibition of the medical department, each section representing one branch of the medical sciences. The first of these six sections is arranged by the Imperial Board of Health of Berlin and the Royal Ministry for Medical Affairs to illustrate the method of combating epidemics, bacteriological research, and experimental therapeutics. This room is fitted up as a bacteriological laboratory and displays the latest and most approved forms of apparatus for bacteriological research, also a compact "flying laboratory" which can be quickly and easily moved from

place to place, and contains everything necessary for the purpose of investigating epidemics. On the wall of the room are pictures of patients afflicted with smallpox, leprosy and bubonic plague. The exhibition of this latter disease deserves special mention on account of its completeness and excellence. In addition to the pictures showing the different stages of the disease, are pictures of the pathological anatomy of different organs infected; also pictures of the wards and laboratories where the investigations are carried out. On a table beneath is a model of the apparatus used for killing rats on board vessels, a preventive against the importation of plague. The agent used for this purpose is carbonic acid gas which is introduced into the vessel through the air shafts, the rest of the openings having been sealed up. Cultures of the plague bacillus, pathological specimens of different organs infected, and rats inoculated and preserved in Kaiserling fluid show beautifully the character of this disease.

Plates and cultures, showing the growth of different organisms, may be seen here. They include not only the ordinary pyogenic organisms, but those producing anthrax, meningitis, pneumonia, influenza, glanders, actinomycosis, Asiatic cholera, tetanus, diphtheria, dysentery, typhoid and tuberculosis. Among the therapeutic agents displayed are antitoxins for combating certain of these diseases; as diphtheria, tetanus, anthrax and swine erysipelas. The inoculating agent and the apparatus and methods of inoculating and obtaining the serum are here shown. The exhibition of the pathology of typhoid, diphtheria, and Asiatic cholera, is very good, showing in each case the culture of the organism producing the disease and the lesion in the infected organs. Monographs on the nature of the infectious diseases are placed with the corresponding exhibits for distribution to and instruction of the public in the cause, character and means of preventing these diseases.

In the next room devoted to anatomy are some very beautiful dissections of the muscles of the upper extremity preserved in Kaiserling fluid. A series of dissections of the foot showing the muscles, tendons, nerves, blood vessels and ligaments; a dissection of the brain showing in detail its gross anatomy; a series of twenty-two cross sections of the human head, neck and shoulders, illustrating this method of study and instruction, are here displayed. Sections of the temporal bone to show the minute anatomy of the ear are not the least important of this exhibit.

A number of wax models of the various joints and ligaments, a model of the human fetus, and a very interesting model of the development of the urogenital apparatus, are arranged by Dr. Boesike, prosector at the Anatomical Institute of Berlin. A refutation of the idea of maternal impressions is seen in the display of sixteen specimens of malformations in birds and mammals produced experimentally.

The surgical exhibit is arranged in two sections; one representing the Royal Surgical clinic of Berlin; the other the Royal Surgical clinic of Breslau. The first room shows the exhibits from the Royal Surgical clinic of Berlin under the direction of Prof. Dr. von Bergmann and contains many interesting models in wax of surgical procedures, such as, the extirpation of the tongue after dividing the ramus of the jaw, extirpation of the larynx, and hemicraniotomy. These models are very beautifully made and show in detail the various steps of these operations, and the anatomical relations. The successive steps of the Bassini operation for the radical cure of inguinal hernia are very clearly pictured by these models, also Von Bergmann's operation for making a gastric fistula. In addition there are pictures of tumors about the head, face and neck, showing by comparison the difference in appearance of the various growths that may occur in those regions. A number of very fine specimens of sarcoma preserved in Kaiserling fluid may be seen here.

The next section contains the exhibit of the Royal University of Breslau, under the direction of Prof. Dr. von Mikulicz-Radecki. Here may be seen, arranged around the walls of the room, an exhibit of the surgical affections of the knee, illustrated by casts taken from the living, and produced in wax, showing the difference in appearance of sarcoma, tuberculosis, tabetic arthropathies, loose bodies in the joint, effusions into the knee, and fractured patellæ — a comparison of the normal and affected knee being shown in each case.

On the stand beneath are prints taken from the original Roentgen-ray plates, and schematic drawings traced from the same plates to show the character of the growth in these different affections. On an adjacent stand are wax models illustrating the technic of certain abdominal operations. Among these may be mentioned the various skin incisions most commonly practised in abdominal operations at the clinic of Von Mikulicz; a model showing the important points in a posterior retrocolic gastro-enterostomy and a resection of the pylorus with an end-to-end anastomosis by means of a Murphy button. Near by may be seen a demonstration of esophagoscopy by means of a phantom showing the esophagoscope in position with a revolving disc at the distal end holding wax models of the pathological conditions which may arise in the living. There are photographs of foreign bodies lodged in the esophagus, and x-ray photographs — some negative, some positive. The diagnosis in each case was made by means of the esophagoscope, and the foreign body removed through the mouth, or pushed into the stomach and passed per rectum. Other cases are shown in which the diagnosis having been made by the esophagoscope esophagotomy became necessary to dislodge the foreign substance. Some very fine wax models from the dermatological clinic of Breslau and a display of surgical instruments and apparatus from the firm of Georg Haertel of Breslau completes this section.

Adjoining the surgical section is a room for the display of the pathological exhibit. Here wax models for the demonstration of an autopsy are shown. The thoracic cavity is exposed and the heart is grasped by a hand to show its position when opening the right and left side of the heart.

Wax models of the brain are displayed, explaining Virchow's method and the position of the hand in cutting the brain. These models are very beautiful and show perfectly the section of the brain, the cerebral hemispheres, basal ganglia, and cerebellum. The pathological specimens are extremely interesting and well preserved, Kaiserling fluid being the preservative most commonly used. The exhibit of sarcomatous tissue is especially fine; one display shows the secondary deposits which have taken place in the mesentery, liver and vertebral column; another shows the dissemination of a melanotic sarcoma, arising from a pigmented mole, involving the uterus, intestines, peritoneum, liver, lung and brain. The pathological conditions of the kidney are well illustrated. There are some excellent specimens of renal calculi, renal cysts, a specimen showing a compensatory hypertrophy of the right kidney with atrophy of the left, amyloid degeneration of the kidney, and last and very interesting is a specimen of tuberculous urethritis, cystitis, ureteritis and nephritis showing a caseous ulcerating condition of one kidney and a cyanotic induration of the other. A very fine specimen showing the effect of an unchecked hemorrhage of the dura is to be seen here, the dura with the clot is removed showing the resulting compression of the brain. A series of sections of the bones is displayed to show the pathology of rachitis, and several skeletons show the osseous deformities seen in the bones of the thorax.

The final section of this exhibit is devoted to internal medicine. As this subject is hard to picture, since the means of study, the manner of making a diagnosis and the method of treatment are taught mainly by lectures, it was decided to take as an example one disease, namely, tuberculosis. Through the assistance of the makers of diagnostic instruments, manufacturers of hospital supplies and accessories, and the pathologist, the means of making a diagnosis, the manner of prevention and the method of treatment of this disease are explained.

Here are also shown various forms of microscopes, stethescopes and laryngoscopes, apparatus for sterilizing clothing and rooms, and receptacles for the sputum. A model ward tent and a bed which can be utilized as a chair or bed illustrate a feature in the open air treatment of this disease. The pathology of the disease is pictured by specimens of the various organs involved.

This completes one of the most remarkable and thoroughly representative exhibitions of the Fair, embracing as it does almost every department of the medical sciences.

* * * *

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 6, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Diarrheal Diseases.
New York . .	3,908,644	1,439	660	44.18	8.46	2.52	1.00	27.06
Chicago . . .	2,021,086	473	173	41.77	5.70	.42	1.05	25.32
Philadelphia	1,407,968	428	156	38.30	4.44	1.16	1.16	21.95
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	223	95	43.94	2.69	.90	1.34	26.45
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	149	—	36.23	3.35	1.34	10.06	16.10
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee . .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	67	39	39.80	2.98	1.19	—	28.34
Boston . . .	617,950	250	107	27.20	6.40	.42	2.00	12.80
Worcester . .	136,925	44	13	20.45	4.54	—	—	15.90
Fall River . .	119,849	37	23	51.34	2.70	—	2.70	40.50
Lowell . . .	104,402	45	32	—	6.67	—	—	—
Cambridge . .	100,998	28	14	39.28	—	—	—	39.28
Lynn	73,876	24	13	29.16	4.16	—	4.16	12.50
Lawrence . .	72,348	20	13	70.00	—	—	—	45.00
Springfield .	72,020	17	7	41.17	5.88	—	—	35.29
Somerville .	70,413	18	5	58.88	16.67	—	—	22.22
New Bedford	68,863	24	15	58.32	—	—	—	58.32
Holyoke . . .	50,538	15	7	46.67	6.67	—	—	33.33
Brockton . .	46,801	13	6	6.67	—	—	—	—
Newton . . .	39,310	7	2	57.20	—	—	—	42.90
Haverhill . .	39,061	9	6	33.33	—	—	—	33.33
Malden . . .	37,205	9	6	33.33	11.11	—	—	33.33
Salem	37,188	15	9	20.00	—	—	—	20.00
Chelsea . . .	36,499	17	4	11.76	11.76	—	—	5.88
Fitchburg . .	36,335	5	3	—	—	—	—	—
Taunton . . .	34,577	15	9	60.00	—	—	—	52.22
Everett . . .	30,209	8	5	12.50	—	—	—	—
North Adams	29,201	9	4	33.33	—	22.22	—	—
Quincy . . .	26,798	4	1	25.00	—	—	—	—
Gloucester .	26,131	—	—	—	—	—	—	—
Waltham . . .	25,797	7	1	28.60	—	—	—	14.30
Brookline . .	25,576	1	—	100.00	—	—	—	—
Pittsfield . .	22,870	12	5	41.65	8.33	—	—	25.00
Medford . . .	21,956	3	3	33.33	—	—	—	33.33
Chicopee . .	21,692	4	3	25.00	—	—	—	25.00
Northampton	20,314	8	4	50.00	—	—	—	50.00
Beverly . . .	15,807	4	—	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	2	0	50.00	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park . .	14,500	—	—	—	—	—	—	—
Newburyport .	14,478	5	2	40.00	—	—	—	20.00
Woburn . . .	14,315	5	1	20.00	—	—	—	20.00
Melrose . . .	13,819	3	0	—	—	—	—	—
Westfield . .	13,809	5	3	—	20.00	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . . .	13,699	1	0	—	—	—	—	—
Revere	13,699	5	2	20.00	—	—	—	20.00
Framingham	13,974	—	—	—	—	—	—	—
Peabody . .	13,406	—	—	—	—	—	—	—
Gardner . . .	12,324	—	—	—	—	—	—	—
Southbridge .	11,716	3	3	100.00	—	—	—	100.00
Watertown . .	11,575	2	2	50.00	—	—	—	50.00
Weymouth . .	11,350	2	1	—	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,484; under five years of age, 1,457; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,333; acute lung diseases 204, consumption 350, scarlet fever 9, whooping cough 15, cerebrospinal meningitis 27, smallpox 1, erysipelas 4, puerperal fever 4, measles 10, typhoid fever 50, diarrheal diseases 815, diphtheria and croup 48.

From whooping cough, New York 2, Chicago 6, Philadelphia 1, Pittsburg 6. From measles, New York 6, Philadelphia 2, Pittsburg 1, Boston 1. From scarlet fever, New York 2, Chicago 3, Philadelphia 3, Baltimore 1. From cerebrospinal meningitis, New York 18, Baltimore 2, Pittsburg 1, Boston 4, Worcester 1, Pittsfield 1. From typhoid fever, New York 13, Chicago 7, Philadelphia 5, Baltimore 3, Pittsburg 15, Boston 5, Fall River 1, Lynn 1. From erysipelas, New York 1, Chicago 2, Lawrence 1. From small-pox, North Adams 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending July 23, the death-rate was 14.1. Deaths reported 4,142; acute diseases of the respiratory organs (London) 36, whooping cough 91, diphtheria 50, measles 177, smallpox 5, scarlet fever 24.

The death-rate ranged from 3.1 in West Bromwick to 20.3 in Liverpool; London 14.8, West Ham 14.1, Brighton 13.6, Southampton 13.9, Plymouth 13.3, Bristol 11.5, Leicester 9.5, Nottingham 14.5, Bolton 15.4, Manchester 14.6, Salford 17.8, Bradford 16.8, Leeds 16.6, Hull 13.1, Sheffield 11.7, Cardiff 10.6, Rhondda 19.6, Wigan 10.0, Merthyr Tydfil 16.5, Bournemouth 9.7, Bootle 18.6.

METEOROLOGICAL RECORD.

For the week ending August 6, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A.M.	Relative humidity. 8.00 P.M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A.M.	Direction of wind. 8.00 P.M.	Velocity of wind. 8.00 A.M.	Velocity of wind. 8.00 P.M.	We'th'r * 8.00 A.M.	We'th'r * 8.00 P.M.	Rainfall in Inches.
S.. 13	30.00	76	89	63	77	69	73	S W	S W	13	25	F.	C.	.0
M.. 1	29.96	80	89	72	77	74	76	S W	S W	14	8	C.	O.	.01
T.. 2	29.96	72	76	68	85	90	88	E	S	3	4	R.	O.	.59
W. 3	30.06	66	70	62	81	97	89	N	E	8	8	C.	R.	T.
T.. 4	30.16	66	70	61	94	88	91	E	S S	5	8	T.	C.	T.
F.. 5	30.06	71	77	65	76	83	80	S	S	7	8	F.	O.	.0
S.. 6	29.83	74	81	67	90	86	88	S	S	5	10	O.	C.	.25
☞	30.00		79	65			84							.85

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING AUGUST 13, 1904.

W. N. MCDONNELL, acting assistant surgeon. Detached from the "Marcellus" and ordered to the Naval Recruiting Rendezvous, Baltimore, Md.

V. DABNEY, acting assistant surgeon. Detached from the Naval Recruiting Party No. 3, and ordered home to wait orders.

R. C. DEAN, medical director. Detached from duty as a member of the naval retiring board, Washington, D.C., and ordered home.

G. F. DUNCAN, acting assistant surgeon. Detached from the Naval Recruiting Party No. 2, and ordered to the "Franklin."

W. H. JANNEY, acting assistant surgeon. Detached from the Naval Recruiting Party No. 1, and ordered to the "Marcellus."

G. A. LUNG, surgeon. Detached from the "Hancock" and ordered to the "Kentucky."

M. S. GUEST, passed assistant surgeon. Detached from the "Kentucky" and ordered to Washington, D. C., September 1, for examination for promotion and to wait orders.

F. A. ASSERSON, assistant surgeon. Detached from the "Kentucky" and ordered home to wait orders.

P. T. DESSEZ, assistant surgeon. Detached from the Naval Academy and ordered to the "Kentucky."

APPOINTMENTS.

The New York School of Clinical Medicine announces the following changes in the faculty: General Medicine: Professors Wm. Brewster Clark and Henry Lawrence Schively; Associate Professors Thos. M. Acken and Edw. L. Kellogg; General Surgery: Prof. Simon J. Walsh and Assoc. Prof. J. Cameron Anderson; Gynecology: Professors Augustin H. Goelet and A. Ernest Gallant; Pediatrics: Professors Dillon Brown and Henry Comstock Hazen; Nervous and Mental Diseases: Professors J. Arthur Booth and Emmet C. Dent; Gastro-Intestinal Diseases: Prof. Robert Coleman Kemp; Ophthalmology and Otology: Professors John L. Adams and Geo. Ash Taylor; Dermatology: Prof. Robert J. Devlin; Laryngology and Rhinology: Prof. Max J. Schwerd; Orthopedic Surgery: Prof. Homer Gibney; Hydrotherapeutics: Prof. Alfred W. Gardiner; Genito-Urinary Diseases: Professors Wm. K. Otis, Walter Brooks Brouner and John von Glahn; Pathology: Prof. E. E. Smith.

RECENT DEATH.

ALBERT W. WARDEN, M.D., of Union Hill, Hudson Co., N. J., died at the Presbyterian Hospital, New York, on August 9, of septicemia, resulting from a poisoned wound received while attending a patient. Dr. Warden, who was forty-seven years of age, organized the first free public library at Union Hill, where he also served as a school trustee.

BOOKS AND PAMPHLETS RECEIVED.

American Edition of Nothnagel's Practice. Tuberculosis and Acute General Miliary Tuberculosis. By Prof. Dr. G. Cornet. Edited, with additions, by Walter B. James, M.D. Authorized translation from the German, under the editorial supervision of Alfred Stengel, M.D. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Original Articles.

THE PRESENT STATUS OF HYDROTHERAPY AND OTHER FORMS OF PHYSICAL THERAPEUTICS.*

BY JOSEPH H. PRATT, A.M., M.D., BOSTON,
Physician to Out Patients, Massachusetts General Hospital; Assistant in the Theory and Practice of Physic in Harvard University

IN an admirable address delivered at the opening of the balneological course at Baden-Baden last October, Professor Vierordt [1] asserted that the recent introduction of physical methods of treatment marked a turning point of great importance in the history of medicine. In the past, the reluctance of scientific physicians to avail themselves of physical agents — light, water, air, heat, electricity, movement — has been in large part due to the fact that their use did not rest upon a scientific basis. They were employed chiefly by men devoid of scientific accuracy, untrained in careful diagnosis, who, content to allow physical methods to be judged by results obtained, made extravagant claims for them and introduced, to explain their use, wild conjectures and theories unsupported by physiological and pathological evidence. Within the past decade, however, empiricism in physical therapeutics has been overthrown, and to-day the use of air, water, heat and other natural methods of cure rests upon a firm foundation.

It is not surprising that the study of gross and microscopical morbid anatomy caused a loss of therapeutic faith, amounting in many instances to a denial of the efficacy of almost all medicines. The futility of the treatment employed was too often apparent at the postmortem table. This spirit of therapeutic hopelessness is passing away. A knowledge of pathology no longer presupposes that its possessor has no interest or faith in treatment. It is true that faith in drug therapy has not increased, but the value of physiological procedures is realized more and more as knowledge of physiological and pathological processes increases and nature's modes of cure are better understood. Let me cite an illustration. The tubercle bacillus is ubiquitous, and the only reason any individual escapes infection is owing to the ability of the healthy tissues to destroy the bacilli, and the only method of cure is to increase the resistance of the tissues. Judged by a study of morbid anatomy alone, few diseases would seem more hopeless than phthisis pulmonalis. Yet everyone knows that fresh air, good food and rest cure more than half of the incipient cases, and diminish or remove the distressing symptoms from those in whom the disease is far advanced.

The interest and study given to the investigation of physical therapeutics by the leaders of medical thought in Germany is certainly a hopeful sign. This new movement has resulted in the development of a system which embraces within its scope the treatment of all forms of disease. There is no attempt to substitute physical procedures for drugs of recognized value, but to combine both methods of treatment.

The experimental method in the study of hydrotherapy was introduced by Winternitz over thirty years ago, and his treatise published in 1877 placed hydrotherapy on a physiological basis. Although it was one of the first physical methods to be granted a place in scientific medicine, knowledge of the mode of action of water upon metabolism, the circulation, the blood and the nervous system is still very imperfect. The work which was begun along proper lines by Winternitz is now being extended, and during the past year important researches upon subjects connected with hydrotherapy have been reported in some of the leading scientific journals of Germany, — *Deutsches Archiv fur klinische Medizin, Zeitschrift fur klinische Medizin, Ziegler's Beitrage, et al.*

The reason that physiological therapy has developed so rapidly in Germany is explained by the fact that its study has been undertaken with the same thoroughness and by the employment of the same critical methods and with the same scientific spirit as has characterized the work of the Germans in physiology, pathology and the other fundamental medical sciences.

Of all the non-medicinal methods of treatment, nutrition therapy, to use a term introduced by von Leyden, has reached the highest point of development. It is the knowledge of the physiology of nutrition gained by the investigations of Justus von Liebig, Voit, Rubner, and others, which gives dietetics the important place it now holds.

The beginnings of this new period in therapeutics date back many years. Early in the last century a method of medical gymnastics was introduced by Ling in Sweden which is used to-day. Within comparatively recent times, Gustav Zander, another Swede, devised a system of mechanical gymnastics, and invented elaborate and ingenious apparatus. The Frenchmen, Junod, Tabarié and Pravaz, laid the foundation of pneumotherapy. Electrotherapy originated with Duchenne, of Boulogne, and its scope was extended by Erb, of Leipsic, now of Heidelberg. The recently developed light therapy is chiefly due to the investigations of Finsen, of Copenhagen. The compensatory exercise-therapy, so valuable in the treatment of tabes dorsalis, was introduced by the Swiss physician, Frenkel. Local hot air baths for arthritis were first employed by Bier, while an assistant of von Esmarch at Kiel. Scientific hydrotherapy, as we have said, is chiefly indebted to the Austrian, Winternitz. Thus it will be seen that modern physical therapeutics was developed by many men in different countries. These pioneers, isolated from one another, worked along special lines, and until recently their influence on medical practice was not great.

Some of the leaders of medicine, among whom was the honored Kussmaul, saw with almost prophetic vision the direction in which the therapeutics of the future would progress, and realized

* Read before The Massachusetts Medical Society, June 8, 1904.
[1] Vierordt. Die Therapie der Gegenwart, Nov., 1903.

the need of instructing the physicians and students of their generation in dietetics and methods of physical treatment. Eulenberg and Samuel, in their Handbook, pointed out clearly this defect in medical education, which existed in Germany as late as 1898. Much has been accomplished within the past ten years, and for this rapid development great credit should be given to Professor von Leyden, who has utilized the commanding position he holds in German medicine to the advancement of physical therapeutics. In 1897 he published, with the collaboration of the leading authorities, the "*Handbuch der Ernahrungstherapie*" in two large octavo volumes. This was so successful that another edition has been prepared, the second volume of which has just been issued. V. Leyden also established a journal, devoted exclusively to dietetics and physical therapy — the *Zeitschrift fur diatetische und physikalische Therapie*.

Inspired by von Leyden, his associate, Goldscheider, and assistant, Jacob, issued the "*Handbuch der physikalischen Therapie*," in four volumes — an admirable work to which Hoffa, Eichhorst, Jolly, v. Liebermeister, Litten, Nothnagel, Riegel, Senator, and other well-known university teachers, contributed.

At the present time, in Germany, the leaders in internal medicine are the leaders in physiological therapeutics. Nothing indicates more clearly the present status of hydrotherapy in Germany than the fact that the three largest university clinics have recently been equipped with the latest and most approved apparatus for water treatments.

In Berlin, the University maintains a hydrotherapeutic institute at the Charité. It was opened in January, 1901, and is under the direction of Professor Brieger, distinguished for his investigations in chemistry and bacteriology. In establishing the institute, Brieger was aided by Professor Koch, a verification of the statement I have made that this new development in therapeutics appeals to the scientific mind.

Up to April, 1903, about 34,000 treatments had been given in Brieger's hydrotherapeutic polyclinic, important researches made, and nearly twenty-five papers published.[2] His lectures on general therapeutics were attended by one hundred and forty-five students, and three hundred and fifty-four physicians received instruction. Light, heated air, massage and mechanotherapeutic procedures are used in conjunction with hydrotherapeutic measures.

In connection with v. Leyden's medical clinic, is a department for physical therapeutics under the immediate charge of Paul Jacob, whose interesting report of the work accomplished during the past year occupies thirty-five pages of the latest volume of the *Charite-Annalen*.

The *Anstalt* for physiological therapeutics in the University Clinic at Munich is one of the most complete in the world. It was equipped by the Bavarian government at great expense. The hydrotherapeutic arrangements are unexcelled. There are facilities for full baths, half baths, local baths (arm, foot, etc.), sitz-baths combined with douches for the back, abdomen or vagina, vapor baths and vapor douches, hot-air baths, sand baths, mud baths, fango packs, salt baths, carbon dioxide baths, sulphur baths, electric baths and a variety of douches.

Several small rooms are devoted to inhalation therapy. One sees here the remarkable inhalatorium devised by Wassmuth, and other simpler systems of inhalation are also to be found. A large hall is devoted to mechanotherapy, and contains twenty-two different forms of Zander's apparatus for passive and resistant movements and massage manipulations. Another room contains a Finsen light of the original pattern, and general and local electric light baths.

The great Leipsic clinic is well fitted up with appliances for hydrotherapeutic treatments, as is also Erb's clinic at Heidelberg.

Many years ago, Liebermeister built rooms in his Tübingen clinic for hot air and vapor baths. At the present time, the hot air cabinet is generally preferred to the hot chamber (Turkish bath), because in the former the patient is not compelled to breathe super-heated air, and danger from congestion of the lungs is averted. Moreover, it is easier to supply pure air and the temperature of the bath can be regulated to the needs of the individual.

Elaborate apparatus is not essential to success in hydrotherapy. Much can be accomplished, as someone has said, with a bucket of water and and a couple of towels, if intelligently applied. For over fifteen years, simple hydrotherapeutic procedures have been extensively used in Professor Stintzing's clinic at Jena, in the treatment of chronic as well as of acute disease, including severe organic maladies. That the measures employed have yielded important results is indicated by the publication of Matthes' text-book of clinical hydrotherapy, based in part upon the experiences of the Jena clinic where Matthes served as assistant for nearly ten years. This work is probably the best, as well as the most scientific that has appeared. The opinions expressed are conservative and convincing. The author is not simply a specialist in hydrotherapy, but is a professor in the university, director of the medical polyclinic at Jena, and recognized as among the ablest of the younger German clinicians.

Another indication of the important place hydrotherapy holds in German medicine of the twentieth century is the attention given to this subject in the latest standard works on internal medicine. In the last edition of v. Strümpell's "*Lehrbuch*," water treatments are recommended in sixteen diseases, exclusive of those of the nervous system. In Penzolt and Stintzing's "*Handbuch der Therapie innerer Krankheiten*," third edition, 1903, over one hundred and fifty pages are devoted to the general hydrotherapy and balneotherapy of diseases of the nervous system.

In the summer semester of 1902, the following German universities offered one or more courses

[2] Krebs. Die medicinische Woche, 1903, iv, p. 255.

in some department of physical therapeutics, usually hydrotherapy: Berlin, Bonn, Breslau, Erlangen, Greifswald, Halle, Heidelberg, Leipsic, Munich, Strassburg, Tübingen, Rostock and Würzburg. This makes a total of thirteen out of the nineteen universities which gave specials on these subjects in a single half year. Compare this record with that of our American university schools, none of which, so far as I have been able to learn, gives a similar course.

In addition to the opportunities for instruction in the physical therapy of medical diseases, Ritter, of Bier's clinic, devoted a course to physical methods in surgery. During the present semester, one of the two courses given by Proffessor von Strümpell, at Breslau, is limited to physical therapeutics.

Austria is the home of modern hydrotherapy. At Kaltenleutgeben, in 1862, Wilhelm Winternitz, the "father of scientific hydrotherapy," established his sanitarium for water treatments, which has increased from eighteen patients treated the opening year, to two thousand patients in 1896. Winternitz founded at his own expense an out-patient hydrotherapeutic clinic, in connection with the university hospital at Vienna. Later he was made *ausserordentlicher* professor of internal medicine. He has given instruction in hydrotherapy to hundreds of physicians. In 1890, he founded the *Blatter fur klinische Hydrotherapie*. This has become the standard journal of hydrotherapy, and its original articles and reviews record nearly all the advances in this department of medicine.

In the model clinic of Jaksch Ritter von Wartenhorst, at Prague, are appliances for the most approved hydrotherapeutic treatments, and in the curriculum of 1904 he included, as is his custom, a two-hours' weekly course on hydrotherapy. Professor Pribram, in the same university, also offers special instruction in physical therapeutics.

At the *Spedale S. Maria nuova*, in Florence, connected with Grocco's medical clinic, is an institute for physical therapeutics which compares favorably with any in the world. According to Baruch, it possessed in 1900 the best douche apparatus in Europe. At the time of my visit, two years later, the establishment was supplied with the latest appliances for other forms of physical therapy. It was interesting and significant to note that the equipment was of Italian manufacture.

In Rome, an institute devoted to physical therapy has recently been opened which is complete in its appointments. The architect of the palatial building, with a true artistic sentiment, caught the spirit of the movement, and the classic style adopted not only gives the institute the character of a public building, but permits the entrance of the largest possible amount of sunlight. The director, Professor Colombo, holds an academic position in the University of Rome and is the editor of the *Revue Internationale de Therapie Physique*.

Practical hydrotherapy developed more rapidly in France than in any other country, and has for many years been held in high repute by leading clinicians. Fleury, a member of the faculty of medicine of Paris, introduced the douche, which is the most valuable of all hydriatic procedures in chronic disease. His excellent "*Traite d'hydrotherapie*" reached its fourth edition as early as 1875. Charcot used hydrotherapeutic measures constantly in his practice. Probably the best presentation of the douche treatment, which is known as the French method, is to be found in the manual of Beni-Barde and Materne, published in Paris in 1894.

In England, hydrotherapy has scarcely gained a foothold. Dr. Calvert, warden of St. Bartholomew's Hospital, told me he knew of no institution that had any special equipment for this form of treatment. The facilities for light therapy, however, at the London Hospital are admirable. Three of the original Finsen arc-lights have been installed, and a number of small lights of the French pattern. This movement was inaugurated by Queen Alexandra. Over a hundred cases of lupus receive daily treatment. The Röntgen rays and Tesla coil are also used.

Even hydrotherapy, in acute diseases, has made little progress in Great Britain, although it was early advocated by Wilson Fox and Ord. The leading champion of the cold bath treatment in typhoid fever has been Cayley, who, in the Croonian lectures for 1880, clearly and convincingly set forth its advantages.

Strange it is that the land of Currie, whose teachings influenced Brand, should be the last to adopt the cold water treatment in typhoid fever. There is some evidence, however, that the clouds of prejudice are being swept away. In the typhoid fever number of the *Practitioner*, published in January, 1904, Dr. J. W. Moore, in discussing the treatment, says that "in the water treatment alone have we a safe and certain means of controlling, or even reducing, temperature in the febrile state," and in another paper, contributed to the same journal, Dr. Hawkins states that for "controlling pyrexia there is nothing like cold water."

Mention should be made of the excellent *Journal of Balneology and Climatology* published in England, to which the distinguished clinical physiologist, Oliver, has contributed valuable articles.

The modern cold bath treatment of typhoid fever was introduced into America and first systematically used by a Fellow of this Society, Dr. R. T. Edes, who honors us with his presence to-day. In 1875, he presented at this annual meeting an able and scholarly paper, characterized by its philosophical tone, in which he described the work of Brand, Ziemssen and Liebermeister, and reported that he had used the graduated cold full bath with friction since 1872 in sixty-six cases of typhoid fever. Of thirty-two patients treated from the first week of the disease, only one died. The pity of it is that the generation to whom he announced this was so blinded that it could not see the truth. Think of the

lives needlessly sacrificed in Massachusetts alone since 1875, because Dr. Edes' advice was not heeded, — not the old and decrepit, but those in the vigor of early adult life. The cold full bath is certainly a heroic method, but it should be used because it saves life. Since July, 1890, hydrotherapy in typhoid fever has been practised by Dr. Osler at the Johns Hopkins Hospital, with a reduction in the death-rate to seven and a half per cent. Equally good results have been obtained by Gilman Thompson in New York and J. C. Wilson and Tyson in Philadelphia.

In this country, the value of hydrotherapy in chronic diseases has been specially emphasized by Kellogg and Baruch, and it has been used by Dr. J. J. Putnam for over twenty years.

The first modern work in the English language dealing with hydrotherapy and untainted with quackery was Winternitz's monograph in Ziemssen's "Handbook of Therapeutics," which was translated from the German in 1884. In 1892, Dr. Baruch published a short but excellent work on the "Uses of Water in Modern Medicine." Later his larger treatise on hydrotherapy appeared. Recently the second edition was issued, which shows not only that the book has been well received, but indicates an increasing interest in hydrotherapy among physicians.

Kellogg's "Rational Hydrotherapy" appeared in 1900. Although a large and expensive work, it has already reached a second edition. It is most comprehensive, and its descriptions of technic are worthy of special commendation.

A system of physiological therapeutics, in eleven volumes, edited by Solis Cohen, has just been completed.

The douche treatment is the most efficient form of water treatment in chronic disease, and its action is the most varied. Baruch, who has always insisted, and rightly so, on precision in method, devised an excellent douche table, which permits exact regulation of pressure and temperature. Douche apparatus has recently been installed in a number of hospitals in this vicinity, including the McLean Hospital, the Danvers Asylum, the New England Hospital for Women and Children, Dr. Millet's Sanatorium at East Bridgewater, the Butler Hospital at Providence, and our own Medical Baths in Boston. Dr. Blumer of the Butler Hospital says in his last annual report that "Hydrotherapy has been so productive of results that our baths are now used far beyond their capacity."

Dr. Baruch has established a hydriatic department at the Riverside Baths, in New York, to which physicians and dispensaries refer cases. The number of patients treated has risen from 2,146, in 1895, to 16,012, in 1902, — incontrovertible evidence, as Baruch says, of the increasing appreciation of the value of hydrotherapy. As a result of the efforts of Dr. J. J. Putnam, assisted by medical men and laymen, a hydrotherapeutic institute with facilities for all forms of hydrotherapy, owned and controlled by physicians, has been established in Boston, to which any physician may send patients. Although only opened seven months ago, the support given and the results obtained have been most satisfactory.

Baruch's douche apparatus is not the only invention American medicine has given to physical therapeutics. In 1891, Kellogg of Battle Creek devised the electric light bath, which, although in constant use to-day in the well-equipped clinics of Europe, remains almost unknown to American physicians.

As early as 1893, Dr. Peterson of New York urged that some of our medical schools give instruction in hydrotherapy. It is encouraging to read in the last annual announcement of the Cornell Medical School that to the students in small sections "will be demonstrated the various applications of water to the treatment of disease — such as baths, packs, douches, etc."

Among hospitals well equipped for other forms of physical therapy, the Royal Victoria of Montreal should be mentioned, which has excellent apparatus for electrotherapy. The facilities at the Boston City Hospital for x-ray therapy and the pioneer work of Dr. F. H. Williams are well known. No hospital in the world has so complete a set of Zander apparatus, numbering sixty-three pieces, as is to be found in the new department of mechanotherapy of the Massachusetts General Hospital.

From this brief sketch of the position hydrotherapy and other physical treatments occupy to-day, it is evident that this branch of medicine has attained a much higher stage of development in Europe than in America. It is a subject certainly worthy the attention of our leading clinicians, and it is to be hoped that our large hospitals, so excellent in other respects, will soon have facilities for physical therapy that will compare favorably with those of Germany, and that the facilities will be as intelligently used. But in order to insure the intelligent application of physical agents, it is necessary that instruction in physical therapeutics should be given in our schools.

DISCUSSION.

Dr. J. J. PUTNAM of Boston: These two papers are certainly very timely, and will be of great service. I shall not attempt to say anything about the scientific aspects of hydrotherapeutics, but simply of the efforts that are being made to place this means of treatment at the service of physicians in this city. Of course much can be done with simple means, but for many purposes an institution is needed, and such an institution we now have at 126 Massachusetts Avenue under the charge of Dr. Pratt and an informal committee of physicians.

Of course such an institution is very expensive, and without outside aid we could not have fitted up the rooms and obtained the necessary apparatus to carry on the work successfully. Our small establishment is now on a good footing, except that we still need the support and interest of physicians, and funds for the introduction of further apparatus.

Dr. G. T. Tuttle of Wellesley: We have been using hydrotherapeutics in some form at the McLean Hospital since the spring of '97, and in order to employ it to the best advantage I have tried to ascertain what

it really did for our patients, since it seemed to me that rather extravagant claims had been made for it. The effect desired was chiefly stimulating or tonic, and great care has been used to secure a good reaction; that is, a permanent return of blood to the surface vessels after cold applications. The problem has been to adapt the temperature of the water, the pressure under which it is delivered, and the time of its application to the strength of the individual so that this reaction may be as perfect as possible. Patients differ in regard to their ability to respond, and there is also a variation in the same person at different times; even healthy people should use caution in taking these baths when they are tired. The neurasthenic, if the bath is too vigorous, complains of exhaustion, which seems to contradict the claim that these baths increase the capacity for work. To determine whether this is so, a series of experiments has been conducted with the use of the ergograph with practically negative results. We could not obtain fatigue curves showing the great increase in work done after the bath that has been recorded by others. Observations on the pulse rate, respiration and temperature during the various stages of an ordinary bath show that they all vary directly with the temperature to which the individual is subjected; while the blood pressure varies inversely with the temperature, — hot applications lower it, cold applications raise it. The sudden fall of blood pressure is no doubt the reason why some people faint while in the hot air cabinet.

Considerable importance has been attached to the fact that some observers have found a large increase of red and white cells in the blood after various hydriatic procedures. We have been unable to confirm this, and, in my opinion, any increase of cells in the surface vessels after cold baths is purely a local phenomenon, and a disadvantage if long continued.

Theoretically, cold applications to the entire surface of the body at once should cause a flushing of the internal organs and an increased activity. Observations have been made by Dr. Otto Folin in our laboratory to determine whether such baths as we give really cause any increase in destructive metabolism of the body, with practically negative results.

The wet pack has been found extremely useful in cases of exhilaration or excitement for its soothing and even hypnotic effects.

While I have been unable to confirm many claims made for hydrotherapeutics, there are, in my opinion, many and sufficient reasons for its use.

Dr. R. T. Edes of Reading: There have been several points in these papers which have interested me very much, and I am glad that they were read together, as Dr. Millet shows that a very efficient use of this highly important agent can be made without complicated and expensive apparatus.

Dr. Pratt's paper, in its very thorough treatment, gave one the idea, although he did not exactly say so, that hydrotherapy is quite a recent introduction in Germany and that it was introduced into this country by Dr. Baruch.

In a report on "Therapeutics" for the BOSTON MEDICAL AND SURGICAL JOURNAL, 1872, I quoted from German authorities statistics on the subject, and in 1875 I read to this society a paper based on my experience of three years at the Boston City Hospital on the "Treatment of Typhoid by Cold Baths." This was published in the BOSTON MEDICAL AND SURGICAL JOURNAL and in the Second Series of the City Hospital Reports.

Of course, the subject is growing and developing. Much elaborate apparatus has been devised and the scope of its application much extended. Probably it is more scientifically understood but it is not absolutely new here.

Dr. Pratt: Certainly, as Dr. Edes says, the use of water in the treatment of disease is no new thing. Probably no therapeutic method is of greater antiquity. I regret that I failed to make it clear that I was dealing only with the development of scientific hydrotherapy. Baths as a curative agent were highly valued by Hippocrates. Galen considered cold water most important in fever, as did Celsus, Avicenna and Rhazes. But the origin of hydrotherapy on a physiological basis dates from the work of Winternitz in the third quarter of the last century.

Over a hundred years ago the distinguished New York physicians, Samuel Bard and David Hosack, following the teachings of Gregory of Edinburgh and Currie of Liverpool, used cold sponging in the treatment of fever. Somewhat later Nathan Smith of Yale College employed with success cold water in typhoid fever. But the influence of these men soon ceased to be felt, and water as a curative agent was forgotten, and hence this period has but slight historic interest and played no part in the development of the hydrotherapy of to-day.

It is certainly not generally known that the modern cold water treatment of typhoid fever, developed in Germany by Brand, Ziemssen, Jürgensen and others, was introduced into America by Dr. Edes. I shall take pleasure in giving him deserved credit in my published address.

THE PRACTICAL APPLICATION OF HYDROTHERAPEUTIC MEASURES.*

BY CHARLES S. MILLET, M.D., BROCKTON.

IT will be my purpose, in the short time that I shall detain you, not to discuss *all* the hydrotherapeutic procedures, but only those with which I have had a personal experience. These procedures, like so many other things in medicine, are at first perplexing and seem well-nigh impossible in private practice; but if they are analyzed a little, and one begins to use them, he will soon find that their application is as simple as it is effective.

The skin contains far more nerves, blood vessels and glands than any other organ; in fact, so numerous are the blood vessels that it is said that they will hold half of all the blood in the body. Its function is to convey impressions to the brain and other nerve centers, to carry off waste products, and to regulate body heat. In other words, it is the organ of sensation, the next most important sense to that of sight. It is a powerful excretory organ, sifting out from the blood carbonic acid gas, various other products of metabolism, and water, in which enormous quantities of pathogenic bacteria have been found.

The heat of the body is produced by the combustion of non-nitrogenous substances, chiefly in the muscles, and it is given off by perspiration and radiation from the cutaneous surface.

Hydrotherapy, then, has to do with sensation, excretion and heat radiation, and if we could only keep these facts in our minds when applying this sovereign remedy, the application would be

* Read before The Massachusetts Medical Society, June 8, 1904.

much easier; it would be oftener made; and the results would be more satisfactory.

Of course, in endeavoring to influence any one of these three functions it is impossible not to affect the others to a greater or less degree; but at the same time, it is not at all difficult to so use water as to vary these impressions and cause the one most desired to become prominent.

Furthermore, by applying water to the skin at various degrees of temperature and in various ways, we can, through reflex action, produce decided effects upon the mind, the central nervous system, and all the internal organs.

Let us first consider the treatment of fever, which is largely, if not wholly, due to diminished heat radiation; there is nothing that will produce quite so much perturbation in the average medical mind as an excessively high temperature. The personal experience of any man who has been twenty years in practice must have carried him through a disappointing period with so-called antipyretics, — the principal one used being acetanilide, I fancy. I well remember a case of typhoid fever, in which the temperature reached 105° before the end of the first week, that I treated with large doses of this drug, some fifteen years ago. The medical magazines at that time were teeming with articles, telling of the efficacy of these coal-tar preparations.

Convinced by the brilliancy of the results claimed, I proceeded to give it on alternate days, and in liberal doses. The effect upon the temperature was as marvelous as it was temporary; but the resulting anemia and peculiar lividity were most distressing. And when Dr. Fitz, whom I called in consultation, wondered at it, I must confess I did not dare to tell him how heroically I had dosed the young woman, — for I had not forgotten his method of showing us our mistakes in the classroom, and I feared he might use it here, the cause was so just.

The reign of drugs in the treatment of fever was, as you all know, very short, and we soon began to hear of Brand and the remarkable results which he had obtained by the use of cold baths in typhoid; and while the idea has been very generally accepted, and its great value acknowledged, yet I firmly believe that his method of using water is so often modified that it would be very hard for the originator to recognize it. The so-called "typhoid bath" of to-day usually consists of sponging with cold water; and while this is quite sufficient when the temperature is not over 104°, any rise above that is not properly treated unless the tub, with friction while in the water, is used. On the other hand, it is to be remembered that reduction of temperature is by no means the main object in view, yet the strengthening of the heart and the calming of the nervous system are not obtained without a gradual fall in this respect.

In any given case, the use of water must be in the nature of an experiment, but failure to produce marked signs of improvement must not deter one from persisting; but rather should cause deep thinking, lest a measure far more productive of good than drugs shall be neglected. Take, for example, a case of scarlet fever which I once saw, — a strong, rugged girl of sixteen, so large and well developed that she looked twenty; there were other cases in the family, so that when she was taken sick it seemed very probable that it must be the same disease; the trained nurse had just taken her temperature when I went in, but said nothing. Placing my hand upon the patient, I found the skin quite cool and said that I did not consider her very ill, whereupon the nurse showed me her thermometer, which had registered 106°; and then when I counted her pulse, I found it to be 140. The extremely high temperature so startled me that I neglected to consider the other symptoms and cold sponging was ordered; the next day exactly the same condition was found, — the skin was cool, but the temperature and pulse were very high, and again the same mistake was made, the belief that the temperature must be reduced being paramount; and a more persistent application of cold baths was insisted upon. And so, on a third day there was found to be no change. It then dawned upon me that something else must be done if that girl was to live, and the nurse was told to wrap her up in a hot, wet sheet, — or in other words, to give her a hot pack.

The result was so remarkable as not to be forgotten; the eruption, which had been delayed, almost immediately appeared, and the pulse and temperature rapidly fell to not much above 100. The explanation is, apparently, that the blood vessels in the skin were so irritated by the poison of the disease as to be in a state of tonic contraction, so that the application of cold had no effect upon them.

Spencer says that *science* is nothing but common sense, systematically and thoroughly applied. Therefore, one can use a little here, and be guided by the condition of the patient, in determining whether the water should be hot or cold; its application long or short, and with or without force. If the pulse is high in tension and full in volume and the skin hot, a cold bath will produce better results, even though the patient cries out against it. I have seen a boy of five scream frightfully for ten minutes, every four hours, for days when the nurse gave him a cold bath, then dropping off to sleep almost immediately, his temperature and pulse being perceptibly improved thereby, in spite of his fright.

If it is true that the heat of the body depends upon and is regulated by the action of the skin, and is kept at a normal degree by the automatic working of this organ, and if it is true that an abnormal rise is in every case due to an impairment of this action, then certainly in hydrotherapy we have a method with which we can at will influence enormously one of the most important functions of the body.

To reduce fever, three kinds of baths are used: that with a sponge, the water containing perhaps alcohol or soda; the cold bath, either in a tub, or in bed with a rubber sheet; and the warm bath, gradually reduced. The question is, of

course, what shall determine our choice; to which the answer is,— *Experiment*; it does not matter which, so long as a good reaction is obtained. Long before any damage can be done to the patient, his own senses or the observation of his nurse, no matter how inexperienced, will give the desired information.

The sponge bath will do for febrile conditions not severe enough to cause any anxiety, and which will evidently be of short duration. But any infectious fever which is at all severe, is certainly poorly treated if a full tub bath, or a bath in bed, with lots of water and friction, is not employed. In order to obtain the confidence of the relatives, it is well to begin with a bath of 100°, and run it down to 90 in about ten minutes; the head should be wrapped about with a cold, wet towel, or the patient will be liable to faint. This is an excellent bath to give a child who has bronchitis, pneumonia, measles, or any other acute infection; and if is is not effective in producing sleep, the temperature of the water should be reduced two or three degrees every three or four hours. If no bath tub is available, an ordinary wash boiler or wash tub is a good substitute. But in a severe case of acute febrile disease in an adult, — of which typhoid fever might be called the type, — it will be necessary to use cold water, which is again mentioned in order to emphasize the point that unless friction is used with it, there is liable to be little or no reaction. The term "reaction" is so often heard in connection with hydriatics that a definition of it might not be out of place; a perfect physiological reaction takes place when the blood, having been driven out of the surface, is caused to return with redoubled energy. In other words, the restoration of heat after heat abstraction is the one thing essential. If the blood is not in the cutaneous vessels to begin with, it is necessary to first apply heat; if one realizes that the nerve filaments which convey the sense of cold act like lightning, while those which carry the heat sense act more slowly, it is very easy to understand why it is so often necessary to apply the latter for the long period; and why, when warmth is alone used, the reaction appears only after a time. Often this is desirable, — say, when one wishes to produce sleep and does not care to arouse the nervous system. But sometimes it is impossible to produce rest and quiet without stimulating the nerves. Such a condition is present in melancholia or acute mania, which it has been my good fortune to see greatly helped by means of bathing. Here the patient should be set in hot water, and a pailful of cold should be quickly and forcibly thrown over the shoulders. It is truly marvelous the way an extremely restless patient will quiet down and go to sleep after such rigorous treatment. Such cases, too, almost always refuse to take medicine; and if they do not, the hypnotics are ineffective except in lethal doses. *It is neither difficult nor dangerous to give baths.*

The hot wet-pack is relied upon by most physicians in eclampsia, and in fact whenever the kidneys are blocked or diseased. But the result obtained is not so much due to vicarious action, as it is to the withdrawal of blood from the internal organs. If used continuously, — I mean day after day, — in chronic Bright's disease, it is better to supplement the heat with a short, quick, cold affusion, and rubbing.

The water poultice is very beneficial in pneumonia, and in all acute pulmonary affections. This is made of three layers of old linen, which are wrung out of cold water and wrapped around the chest, and then dry flannel is placed outside of that. This should be wet as often as it gets warm.

Chlorosis, secondary anemia, chronic, pulmonary and organic heart diseases have all been decidedly benefited by systematic bathing. In these it is advisable to first produce warmth to the point of perspiration, — either with a hot air cabinet, or, better, by a sun bath, — and then to give the patient a warm shower, and to follow that with cold water through the hose. If possible, perambulatory cases would better be treated at a place where medical baths are given, — for a limited time, at least, — after which, if necessary, the treatment can be continued at home. If the physician would go with his patient and see him take a bath in the institution which Dr. Putnam and others have so generously placed at our disposal, he would very quickly discover that there is something in hydrotherapeutics other than charlatanism.

The local application of heat and cold acts on the part treated in a similar manner as the full bath does on the whole body. If a joint or muscle is very hot, apply ice; but if the disease is of a subacute nature, and the circulation and function impaired, first apply heat, and then cold, perhaps with gentle friction. Ice is too often used to need more than a passing word. It is certainly the best substitute for opium, but should not be used constantly, because it will finally cause paralysis of the vaso-dilators. I do not think it is applied over the precordia with the frequency that it should be; placed here, its effect is exactly like digitalis; and the beauty of it is, that it acts with great rapidity; that it has no cumulative action, and that it does not disturb the stomach. In cases of collapse or shock, it is as important to put an ice bag over the heart as it is to apply heat to the extremities; and how often is it done? Ice over the epigastrium will greatly relieve the thirst which follows abdominal operations.

As I said in the beginning, my remarks have been in the nature of a personal experience; and with an apology for the crudeness and cursory way in which I have treated the subject, I will close, — adding an urgent solicitation that you will give a remedy which is as powerful as it is harmless, the confidence which it deserves. Certainly, the skin, by which we are in close communication with the central nervous system, the heart, and in fact all the internal organs, should never be neglected; and half-hearted care and attention are worse than absolute neglect, because they deceive the physician himself.

SACRAL SPINA BIFIDA, WITH REFERENCE TO THE SKIN REPRESENTATION OF SACRAL NERVE ROOTS.

BY E. W. TAYLOR, M.D., BOSTON.
From the Neurological Department, Long Island Hospital, Boston.

THE following case is reported as a contribution to the segmental skin representation of sacral nerve roots, and also for its general clinical interest.

The patient, J. F. McC., thirty-three years old, unmarried, by occupation an amalgamated gold miller, was first admitted to the Long Island Hospital, Feb. 12, 1903. He was discharged, and readmitted Jan. 1, 1904, for the treatment of trophic ulcers and asthma.

The family history has no bearing on the present condition. The matter of chief interest in the personal history is the presence of a sacral spina bifida, from which his disabilities, excepting the asthma, come. He has had asthma since childhood, and as a child had measles, mumps and "cholera infantum." On several occasions he has had cystitis. He has always had incontinence of urine, and wears a urinal constantly. His bowels move irregularly, and coughing is apt to force out a small amount of feces; if the desire for defecation is not soon gratified he occasionally has incontinence. This has remained unchanged throughout his life. Five years before entrance at Long Island, he was treated for three months at the Boston City Hospital for an ulcer on the side of the right foot at the base of the little toe, with necrosis of bone. The ulcer finally healed. Four years later a similar condition appeared on the left foot, for which he was again treated at the City Hospital, with final healing. He was admitted to the Long Island Hospital with a recurrence and necrosis of bone. He has always noticed diminution of sensation over and above the tumor caused by the spina bifida and in the legs and feet. Except when struck the spina bifida has itself caused him no trouble. On those occasions, however, when it has been accidentally struck, he says "he drops like a shot," and has a tonic convulsion of the legs, the duration of the convulsion depending upon the severity of the blow. He makes the statement that "he was once paralyzed for three days as a result of a hard blow received there, and was in agony from a feeling of pins and needles over his legs." Except for the awkwardness due to deformity of his feet he is perfectly able to walk, and he maintains that his sexual capacity is unimpaired. He has had no venereal disease, has been very moderate in the use of alcohol and tobacco and has been able to learn and successfully apply a trade requiring physical effort and manual dexterity. In spite of urinary and fecal incontinence his companions have not recognized his disabilities.

Physical examination gives the following results: Well developed man, with no obvious sign of disability except the easily noticeable deformity of the feet. Tongue, chest, except at time for asthmatic rales, heart, abdomen and abdominal organs normal. Directly over the sacrum (see Fig. 1) is a hard, doubtfully fluctuant, round tumor, 2½ by 1½ inches in diameter, the upper level being an inch and a half below the posterior superior spine of the ilium, and the lower between two and three inches above the anus. Pressure over the tumor produces pain. Further examination made March 19, 1903, showed that gentle touch over the tumor was not felt; pin prick very slightly felt as touch (pressure?); outer side of left foot cooler than inner; loss of muscle sense in toes; legs, in general, cold, cyanotic and more or less discolored; tremor of thigh muscles (excitement?); knee jerks normal; no ankle clonus; plantar present; no front tap; no Achilles; no cremasteric; abdominal and epigastric reflexes also not obtained. The feet both show marked clubbing, which is apparently gradually increasing, interfering considerably with walking.

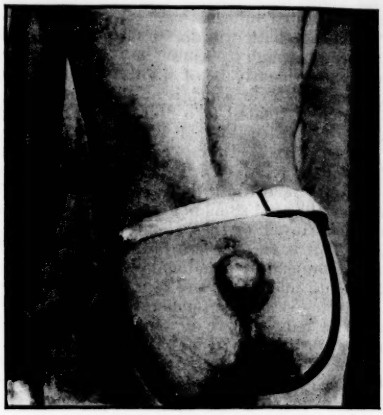


FIG. 1. Spina Bifida; sacral; showing also anal protrusion.

There is slight Romberg, due, he thinks, to the deformity of the feet. There is a scar on the under surface of the right foot, at the tarso-metatarsal joint. On the left foot, a sinus over the fifth metatarsal joint extends upwards about an inch and a half; bone is necrotic; moderate purulent discharge; considerable swelling of the foot, especially of the dorsum, with some induration. There are also slight excoriations in both gluteal folds. Except for the limitation of motion dependent necessarily upon the deformity of the feet, no motor paralysis is discoverable. Flexion at the ankle and movements of the toes are possible, though naturally imperfect. Movements at the knees and hip are perfectly free and made with good strength.

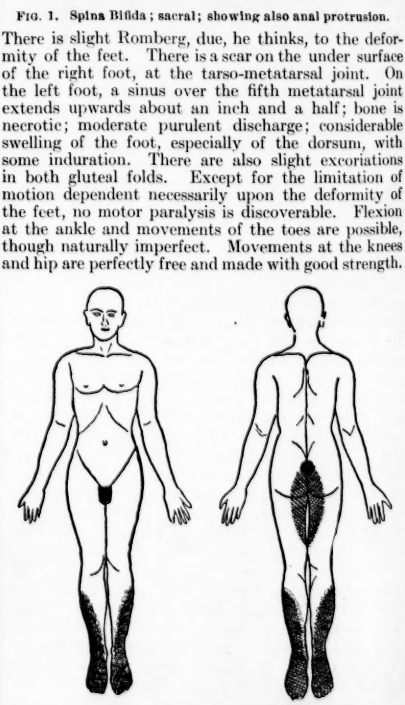


FIG. 2. Areas of anesthesia, shaded.

There is protrusion of the anus. (See Fig. 1.) The sensory loss is as indicated in the diagrams (Fig. 2). The areas deeply shaded are practically completely anesthetic, but the anesthesia everywhere fades out at the borders into the normal.

Treatment at the hospital resulted in a final healing of the foot ulcer, and in an amelioration of the asthmatic condition, and he was discharged. A recurrence of ulceration in both feet led to his return a few months later. In general, the condition remains unchanged, excepting, as he thinks, for an increase of the club-foot deformity; at a recent examination, also, the plantar reflex is reported as absent, instead of present as before noted. The patient remains physically well; the ulcers and club feet combined interfere with walking, which is otherwise perfectly possible, and his scrupulous care has prevented the complications likely to result from urinary incontinence.

The pathological condition in this case is undoubtedly in general this: a defect of development of the sacrum, with a resulting spina bifida, producing symptoms referable to the sacral cord, through involvement of its nerve roots, of predominant sensory character. The tumor is too low for direct involvement of any part of the functionally active cord, the result, however, being essentially the same from interference with sensory conduction through the lower nerves which presumably form part of the walls of the sac. The question of operation in such a case is naturally not to be considered; first because the tumor is so small as to be but a slight discomfort, and secondly because relief by surgical means in a spina bifida, of the type of a meningo-myelocele, is anatomically impossible. The fact that marked sensory symptoms have resulted from this somewhat insignificant-appearing tumor is sufficient indication of the direct involvement of nerve roots. It is also a fair presumption, though naturally one not capable of present demonstration, that in such a malformation, if the upper sacral nerves are involved the lower ones would also be affected. A study of the distribution of the anesthesia, therefore, becomes a matter of interest and importance in the determination of the peripheral areas of sacral segments.

There is still a wide divergence of opinion regarding the segmental distributions of the cervical, lumbar and dorsal nerves, due in part to a possible variation in different individuals, and to the failure to recognize the tendency toward overlapping of the various nerve areas, as pointed out especially by Sherrington; the fact that relatively few cases have been studied with sufficient

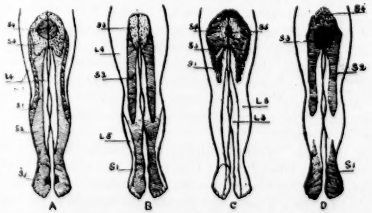


FIG. 3. Sacral Segments after, A, Kocher; B, Thorburn; C, Starr; D, Head.

care, both before and after death, is, however, more directly responsible for the existing differences. Reference to the accompanying diagrams (Fig. 3) illustrates this point with regard to the sacral nerves, to which alone it is desired to call attention. The general rule formulated by Herringham and confirmed by Paterson for the leg that, of two spots on the skin, that which is nearer the preaxial border tends to be supplied by the higher nerve, and of two spots in the preaxial area, the lower tends to be supplied by the lower nerve, and of two spots in the postaxial area, the lower tends to be supplied by the higher nerve, is in general confirmed by all investigators. The details, however, differ widely. Starr[1] contracts the sacral segments almost wholly to the saddle-back area. Kocher represents the widest departure from this distribution in giving an extensive distribution to the second sacral segment in thigh, leg and foot. Thorburn and Head stand between with a representation of the second sacral segment chiefly in the thigh, and of the first in the foot and part of the leg. It is altogether probable that such a divergence does not correspond to the facts as observed in different individuals, and that there is more consistency in the distribution than here represented.

The case here reported is naturally of far less value than if exact knowledge of the nerve lesions were obtainable; nevertheless, the clean cut character of the anesthesia points to a destructive process of extreme degree which is of significance as a contribution to the general subject. On the ventral side of the body the penis, scrotum, leg and foot as represented in the diagrams (Fig. 2) were anesthetic. The sensory supply of the external genitalia from the second, third and fourth sacral segments is very generally conceded, and this case offers nothing noteworthy in this respect. The anesthesia of the front of the leg and foot is, however, of interest. Kocher alone of the investigators to whom we have alluded gives a sacral representation (first and second nerve roots) over the front of the leg. The area he maps out corresponds almost exactly to the anesthesia found in my case, but in view of the dorsal distribution, it appears probable that the fifth lumbar nerve is also involved, its lesion constituting this well-marked anesthesia wholly or in part. This area is generally conceded to be innervated from the fifth lumbar segment. The dorsal anesthesia, to which I wish to call special attention, evidently cannot be explained if Starr's diagram, as represented in Fig. 3 C, be correct, nor can it be made consistent with Kocher's scheme, which supplies the back of the leg unbrokenly with sacral nerves. On the other hand if the plan as outlined by Thorburn and especially by Head be followed, the

[1] Starr: Am. Journ. Med. Sc., iv, p. 15, 1892. Fig. 3, C is after the diagram on p. 29 of this article. In his recent book, "Organic Nervous Diseases" he makes the second sacral segment correspond to the first in the earlier diagram, and extends the first segment down the back of the leg into the foot, bringing the distribution into much closer relationship with Thorburn's and Head's ideas. There can be little doubt that this is a more accurate representation of the facts, than the earlier diagram, which apparently does not account in any way for the second segment.

similarity to the anesthesia as seen in my case is at once apparent. Thorburn merges the area of the first sacral segment with the second, which occupies a strip, extending somewhat below the knee. Head pictures an area intervening between the first and second sacral segments, which is accounted for by lower lumbar segments. This arrangement of the areas is strikingly like that observed in my case. Assuming that the fifth lumbar as suggested above is involved in the spina bifida, the extensive dorsal anesthesia of the legs finds an explanation. The intervening space is in all probability not supplied by sacral nerves, which again, in general, coincides with Head's view (Fig. 3, D). The distribution of the anesthesia in the saddle-back area does not find an exact counterpart in the diagrams from the investigations mentioned, inasmuch as it includes more of the inner surface of the thighs, and does not extend so far down the leg. The fact may be taken for what it is worth as indicating a variation in sensory distribution of the lower sacral nerve roots.

The only motor disorders manifest in the case are marked clubbing of the feet, and protrusion of the anus. The foot deformity is no doubt in part due to faulty shoes, as suggested by Dr. E. H. Bradford.

The case throws no added light on the exact location of the sphincter representation in the cord. It is however, a matter of practical interest that in spite of absolute urinary incontinence and practically a similar condition of the rectum, the patient has been able to work and associate with others, without disclosing his disability. He has also avoided any serious degree of cystitis, and trophic disorders, excepting ulcers of the feet to which allusion has been made in the clinical history. Finally, it is worthy of comment, that in spite of practically complete anesthesia of the penis, his sexual desire and capacity, so far as he knows, have in no way suffered.

A somewhat recent paper [2] by Van Gehuchten discusses, on the basis of a lesion of the canda equina, the question of the centers of micturition, defecation, erection and ejaculation. His opinion is that the primary centers for these functions are for the first three wholly and for the last partly localized in the sympathetic ganglion of the hypogastric plexus, to which are added the centers lying in the lower cord, which in turn are under control of the central cortex. He is furthermore of the opinion that the sympathetic centers may functionate, independently of the cerobrospinal centers, as may be observed in infants, and in adults with lesions of the conus, or cauda equina. In my case voluntary micturition appears to be wholly abolished, whereas defecation is under relative control, and the sexual functions are apparently preserved. The case, therefore, bears out in part Van Gehuchten's views.

It is also of interest that in spite of anesthesia of the feet, the ability to walk has been maintained and appears to be hindered only by the existence of the clubbing of the feet. The patient presents none of the uncertainty of station which one invariably finds in tabes, for example, with an equal degree of disordered sensibility.

The points of significance which a study of this case brings out are:

The existence of areas of anesthesia, from lesion of sacral nerve roots, which in general coincides with Head's description of their skin representation: [3]

The retention of sexual capacity in spite of extensive destruction of the sacral nerve roots;

The absence of marked disturbance of gait in spite of plantar anesthesia;

The practical possibility of physical cleanliness with both vesical and rectal incontinence.

[2] Van Gehuchten: Le Nevraxe, iv, No. 2, 1902. Journ. Nerv. and Ment. Dis., xxx, 376, 1903.

[3] See also diagram from Müller in Dana's Text-Book of Nervous Diseases, Fifth Edition, p. 341.

OPERATIONS ON THE STOMACH, WITH REPORT OF CASES.

BY JOHN C. MUNRO, M.D., BOSTON,
From the Surgical Clinic, Carney Hospital, Boston, Mass.

(Continued from No. 7, p. 190.)

No. LXII. Female, thirty-two years old came to me in February, 1903, with a long history of many operations.

Within the last two or three years she had had an exploratory operation for supposed movable kidney, a cholecystectomy, an operation for adhesions following this latter, nephrorrhaphy, then later an appendectomy. From all these operations she had derived no relief, and she came with persistent pain night and day, nausea, occasional vomiting and general discouragement.

Operation was done at the Boothby Hospital, and the gall bladder, full of gallstones, was removed. The adhesions in that part of the abdomen were formidable and made the operation difficult. After operation she complained steadily of pain deep in the abdomen, not severe, but persistent and dull and followed by vomiting. She begged for further operation for relief, which was unwisely consented to. Under chloroform the abdomen was again explored. Nothing definite was found beyond the general mass of adhesions dragging the liver downwards and pulling the duodenum far to the right and forwards. In separating the adhesions the duodenum was opened and examination through this tear showed the pylorus free and without induration. The tear in the duodenum was closed, but the tissues were so abnormal that it seemed wiser, if possible, to prevent leakage by doing a gastro-enterostomy at once. So the abdomen was opened in the median line and an anterior button anastomosis made at the same time.

About ten days afterwards, leakage of bile and pancreatic fluid appeared in the lateral wound and this continued for a number of weeks.

At the time of the first operation there were evidences of pulmonary tuberculosis. These increased after being in the hospital a few weeks, while the biliary sinus closed gradually. The patient steadily lost ground and was sent into the country on account of her tuberculous condition, where she probably died shortly afterward.

No. LXIII. Female, thirty-nine years old, referred to me by Dr. Hodgkins of Castleton, Vt., in July, 1903.

She had been under medical treatment for stomach trouble for two years, the symptoms steadily growing

worse. In February, preceding, she began to have hemorrhages, much pain after eating, and tenderness in the epigastrium. All these symptoms had steadily increased, with some loss of weight.

Operation, August, at the Carney Hospital. The stomach was found slightly dilated, the pylorus apparently normal, but alongside of it a small area of thickening suggesting an ulcer. A posterior gastro-enterostomy, with clamps and sutures, was made and the wound closed in layers.

The patient's stomach symptoms at once ceased, and at the end of four weeks she returned home, eating regular food without any symptoms. During convalescence there was a stitch abscess, due to some technical error at the time of operation. Three weeks after leaving the hospital vomiting began again and she returned in November with a history of persistent vomiting day and night, coming on one to two hours after eating. No hematemesis. She stated that just before the vomiting attacks recurred, she had fallen forward, striking the abdomen; but it is doubtful if that had any direct influence in the relapse. She still complained of severe pain in the left side, relieved by vomiting or catharsis.

At the second operation there were no adhesions to the old scar, but a portion of the omentum at the right border of the stomach was found adherent far to the left of the median line, pulling the right portion of the greater curvature leftwards and lapping this portion of the stomach over the main portion. This adhesion was freed and the raw ends covered over. At the anastomosis there was a thin sheet of adhesions puckering the distal arm of the jejunum close to the anastomosis so that the gut was folded upon itself into a Z-shape loop, apparently blocking the lumen to a considerable extent. The anastomotic opening was free and without evidence of constriction. The sheet of adhesions was ligated and freed, the jejunum being easily drawn out to its normal straight line. In addition to this the mesentery opposite the opening was shortened upon itself and sutured, in order to counteract any tendency of the mesenteric border of the gut to form a valve. Nothing abnormal elsewhere was found. The wound was closed in layers and the patient recovered promptly and was discharged, eating solid food without vomiting and perfectly well. It is probable that the sepsis which had produced the stitch abscess, infected at the same time the peritoneum at the site of anastomosis, making the troublesome kink. Almost as soon as the patient had arrived at her home vomiting returned, and when heard from in April last she had vomited persistently ever since, some hours after eating. Efforts were made to induce her to submit herself again to operation, but without success. I have no question but that the condition could now be entirely relieved.

No. LXIV. Male, twenty-nine years old, entered the Carney Hospital in September, 1903. Referred by Dr. Smithwick and Dr. G. N. Jones, with a history of dyspepsia for two years, gradual in its onset; distress after meals and latterly even before meals. The duration of the pain varied and relief was obtained by drinking hot water, fol lowed by eructation. He had never vomited and had never had nausea. He had been under all forms of medical treatment and diet, but without benefit. He had lost weight, was unable to work on account of his nervous condition, and operation was advised in the hopes of finding some definite organic cause. Lavage had shown some blood in the later washings. A small, diffuse mass could be felt in the region of the pylorus, moving with respiration. This region was the seat of his pain and tenderness.

At operation the stomach was found moderately dilated. There were no outside evidences of ulcer. The pylorus was free. There were no adhesions. Nothing could be found to account for the trouble beyond the possibility of minute ulcers or a small ulcer of the duodenum undetected from the outside. Posterior gastro-enterostomy was done in the usual way, and the wound was closed in layers. The patient convalesced satisfactorily and at the end of two weeks was discharged, able to eat almost anything.

February, 1904, he wrote that he had not derived great benefit. He had gained weight gradually, and strength, but was still troubled a good deal with gas. Up to Dec. 1 there had been no return of his former trouble. Then he began to have the same distressed feeling and had had several attacks that persisted pretty steadily for some days. He described his trouble as lasting for about a week, followed by relief for two weeks and then returning. He is living regularly and his work is easy, but it is evidently a functional rather than an organic trouble.

No. LXV. Female, thirty-seven years old.

In all probability addicted to the use of opium and cocaine. Referred to me by Dr. Twitchell in December, 1903. She was a marked neurasthenic and came with a history of attacks of faintness, severe pains across the upper abdomen, bleeding for a year, constipation, and enforced limitation in diet for a number of years. She complained of distress an hour or more after eating, and described it as very severe, the griping being followed by flatulence and distention. The diagnosis was extremely uncertain and an exploration was advised on the chances of finding some organic trouble.

At operation, at the Carney Hospital, the liver was found prolapsed, the stomach prolapsed and dilated, the transverse colon was found adherent to the sharp edge of the extreme right portion of the liver, dragging this portion of the lobe two to three inches past the main portion, where it was held by old, firm adhesions, backward against the duodenum and gall bladder, the latter being buried beneath the adhesions. The gall bladder after being freed appeared normal. The pylorus was found irritable at examination, but admitting the finger. Examination of the stomach, pelvis, etc., negative. All the adhesions were freed, the colon was replaced, and a posterior gastro-enterostomy, in the usual way, was done. The mesocolon was found abnormally adherent to the posterior wall, suggesting patches of scar tissue. The wound was closed in layers. The patient made a satisfactory convalescence and was discharged in two weeks, eating the regular food without symptoms.

Since her discharge it has been reported that the patient has had more or less return of her old trouble, but whether due to her neurotic condition or to any true stomach lesion is very doubtful.

This case (No. LXV) with Nos. LXII and LXIV are pretty good examples of the sort of case that should be let alone. When the neurotic element is predominant, even if there is some slight organic lesion to start the explosion, it is doubtful if anything more than temporary benefit will be gained by operation. Such cases are best treated medically and psychologically, judging from this limited experience.

No. LXVI. Female, twenty-six years old, was referred to me by Dr. Johnson of Winthrop, with a history of persistent hemorrhage from the rectum, supposedly from hemorrhoids. She had had several

pelvic operations in times past and came with a history of prolapse and rectal bleeding for two years, with poor appetite and indigestion for some months.

At operation for the hemorrhoids practically nothing abnormal was found to account for the hemorrhage, but what small varicosities there were, were clamped and cauterized.

About a week after operation she had a severe hemorrhage from the bowels, with dark stools, repeated in a few days, and it was evident that the blood had not come from the rectum. She complained at the same time of pain in the stomach region and was evidently losing blood from some region higher up in the intestinal tract. A more careful investigation of her history pointed to old gastric trouble, and at the second operation, at the Carney Hospital, the liver was found prolapsed, the stomach markedly prolapsed, the lesser curvature being at the level of the umbilicus, the gall bladder was adherent to the omentum by old adhesions and drawn out of its normal position. Around the duodenum the adhesions were more marked. Most of these adhesions were separated and ligated, and the gall bladder was sutured to the liver in its normal position. Exploration of the pelvis showed nothing abnormal. An examination of the intestines showed nothing abnormal except for some dark contents suggesting blood. The dilated U-shaped stomach was all that could be found pathologically. Consequently, a posterior gastro-enterostomy, in the usual way, was performed. The mesocolon was found adherent to the posterior wall so that the lesser cavity could not be explored. The gastrohepatic omentum was shortened, lifting the lesser curvature to its normal position. The wound was closed in layers. The operation was a long one and the patient had moderate shock. Examination of the stomach before operation showed stasis, dilatation, free hydrochloric acid. The patient was discharged in about two weeks, enjoying ordinary diet and with a better appetite than she had had for years.

In April she reported that after leaving the hospital she was well for a month, when she began to vomit again, at first in small quantities. She sometimes vomited at once after eating and at other times several hours after. Occasionally she would go an entire week without vomiting, only to have it return every day for a short spell. No difference in diet affected the vomiting. She had had no hemorrhage, was looking well, and had not lost weight. By percussion the stomach seemed to be somewhat prolapsed and dilated, the lower border being at the level of the umbilicus. She was urged to re-enter the hospital for a second operation, with the idea of having an entero-enterostomy or whatever other procedure might be found necessary.

This case and No. LXIII were most disappointing. There must be some technical error to explain the relapses, but I feel so sure that it can be overcome by an entero-enterostomy or a pylorectomy that I would urge another attempt with great confidence.

No. LXVII. Female, forty-nine years old, entered the medical side of the Carney Hospital in April, 1904, after an attack of vomiting for three weeks, latterly persisting day and night, in which she had never noticed blood nor coffee grounds. The patient was very sick, with dry skin, and in bad general condition.

At operation, at the pyloric end of the stomach and the duodenum were old adhesions to the gall bladder and neighboring region, pulling the gall bladder to the left and apparently obstructing the duodenum. After freeing these the pylorus was found to be open, but with a slight thickening close by it as from an old scar. Elsewhere in the stomach nothing abnormal could be detected. A posterior gastro-enterostomy was done in the usual way and the mesocolon was found firmly adherent to the stomach towards the pyloric end. A hurried examination of the abdomen elsewhere showed nothing pathological. The wound was closed in layers.

This patient did not do well after operation. The vomiting was relieved somewhat, then returned again, and three weeks after the first operation the abdomen was reopened and the anastomosis was found free, with apparently excellent drainage into the jejunum. There were a few adhesions of the proximal portions of the gut to the stomach, not causing a kink. At the mesenteric edge of the proximal portion of the gut opposite the edge of the anastomosis, there was thickening of the gut with radiating scars of the peritoneal coat, so that the lumen was partially closed. The proximal portion of the jejunum was a little heavier and more dilated than the distal. The thickening and scar suggested peptic ulcer as the occlusion seemed to be internal and not from any external lesion. Entero-enterostomy was made with clamps and sutures and the wound closed in layers. Vomiting persisted after this second operation and the patient steadily lost ground and died in a few weeks.

Autopsy by Dr. Magrath. Appendix and lymph nodes normal. Transverse colon widely distended with gas. Pylorus adherent lightly by fibrous adhesions to liver. Opening in posterior wall of stomach 2.5 cm. cummunicating with the small intestine. Pylorus admits tip of finger; 50 cm. from beginning of jejunum is anastomosis. Left pleural cavity shows fibrous adhesions. Right normal. Pericardial fluid 250 cm. Myocardium flabby, left ventricle dilated, 9.5 cm. in depth. Lungs alike, voluminous. Base of left slightly increased in consistency, due to small areas of focal pneumonia in a region of partial atalectasis. Both lungs edematous. Spleen 11 cm. in length; pulp slightly increased, composition normal. A coil of ileum 15 cm. from the cecum was united by fibrous adhesions to the floor of the pelvis. Liver and kidneys negative. Aorta normal.

The only cause for the vomiting that seemed possible was the dragging of the ileum by its pelvic adhesion, overlooked at operation because examination of the proximal half of the small intestine failed to show any signs of obstruction lower down. This dragging may have caused the vomiting by reflex action; there certainly was no obstruction.

No. LXIX. Female, fifty-four years old, entered the Carney Hospital in March, 1904, on the medical side, with indefinite gastric symptoms. She was transferred to the surgical side, and under operation a gall bladder full of stones, and an enlarged mass in the region of the pancreas, supposed to be chronic pancreatitis, was detected. The stomach was found prolapsed but not dilated. She gained somewhat, but a month later the gall bladder fistula was reopened because of return of supposed pancreatic symptoms. The stomach began then to give her trouble and the patient was fast becoming unable to hold any food. A gastro-enterostomy was advised as a temporary measure. At operation the retroperitoneal growth had increased and a section from this mass showed, on examination, that the tumor was a retroperitoneal sarcoma and not a chronic pancreatitis, as had been anticipated. A button anastomosis was made and the wound closed.

The patient derived relief from the anastomosis, but gradually failed and died of malignant exhaustion a few weeks later.

No. LXX. Female, forty-four years old, referred by Dr. H. D. Arnold, entered the City Hospital in September, 1901.

A year and a half previously she had vomited blood and was fed by rectum for three weeks. Soreness in the epigastrium persisted, and six months before entrance she had had severe pain which had recurred off and on ever since. There was no history of passing blood by rectum, and she complained of general weakness, soreness in the epigastrium, and sharp pain not related to taking food. Gastric analysis showed free hydrochloric acid present; no stasis; a slight quantity of blood and pus in the washings.

At operation the stomach was found normal in size and on the anterior wall was an indurated, round ulcer midway in the lesser curvature. A posterior gastro-enterostomy, without clamps, was done with silk and catgut. Exploration through the stomach opening showed an ulcer with slightly raised, indurated edges and a more or less fissured base, in the anterior wall. Abdominal wound closed in layers.

Patient improved a good deal after operation, but had some vomiting, and two weeks after operation developed phlebitis of the left leg. She then gradually improved and her vomiting practically ceased and she was discharged from the hospital in fair condition.

In January, 1903, over a year afterwards, I was again asked to see the patient and learned that she had had no vomiting after return from the hospital, but that recently she had had more or less dyspepsia and had again been obliged to limit her diet. For two or three months she had complained again of the griping pains, and latterly these pains had been as severe as ever. Constipation had been a marked symptom. Examination showed in the left hypochondrium and umbilical region a tumor, superficial, hard in the left lower portion, and merging upwards and to the right, towards the right hypochondrium. The tumor was apparently in the stomach and exploration was advised.

At the second operation, at the Boothby Hospital, there was found an excess of abdominal fluid and a large mass in the stomach at the site of the old ulcer, with infiltration in the walls extending into the omentum and colon and apparently throughout the abdomen generally. There were extensive adhesions of the intestine to the stomach and omentum, but the anastomosis was found patent. The old ulcer had either degenerated into a carcinoma or was already carcinomatous at the time of the first operation and not recognized. Nothing more could be done and the wound was closed.

The patient lived several months fairly comfortably and died of general carcinoma.

The twenty-four cases from No. LXXI onwards include the more or less satisfactory results from anastomosis where the lesions were not malignant. The operations have been done too recently to make them of any value on the basis of end results. But the immediate results have been satisfactory and they are offered for what they are worth on that basis, and because they illustrate in the operative findings varied and interesting pathological conditions for which clinical explanations can usually be found.

No. LXXI. Female, forty-four years old, entered the City Hospital in November, 1902.

Had had bilious attacks, with vomiting and headache, ever since she was twelve years old. For three weeks she had had considerable vomiting, coming on an hour or two after eating, with epigastric pain, relieved by the vomiting. Had never vomited blood until two days before entrance, and had lost twenty-five pounds in the last three years.

At operation a dilated stomach, with well-marked scars at the pylorus, was found, without evidence of its being malignant. There were a few old adhesions of the omentum to the duodenum. The gall bladder was negative. A gastroduodenostomy, by Finney's method, was done and the wound closed in layers.

Three days after operation she had some vomiting which was relieved by lavage. The vomiting then ceased and the patient steadily convalesced, and was discharged a month after operation, without gastric symptoms and in good general condition. Her later history has been lost sight of.

No. LXXII. Female, thirty-three years old, entered City Hospital in November, 1902. She had been operated upon in the gynecological service a month before, for tubal and ovarian trouble. She was then transferred to the medical service, on account of almost continual vomiting day and night, which continued in spite of treatment. Her history showed that four years before entrance she had had a rather severe attack of vomiting, with epigastric pain lasting a week, with a little blood and bile in the vomitus. She then had no further trouble up to four months before entrance, except that she had been obliged to steadily restrict her diet in order to avoid gastric distress. At transfer to the surgical side the patient was seriously ill, with hollow, flushed cheeks, tender epigastrium and persistent, exhausting vomiting.

At operation the duodenum and pylorus were found firmly held to the posterior wall by old adhesions of unknown origin. Some of these were ligated and freed. No growth could be felt in the stomach. An anterior button anastomosis was made as quickly as possible, the patient being too ill to allow of careful examination. The upper jejunum was distended beyond normal, but it was impossible to determine whether it was due to any pathological lesion below that point.

After the operation the patient vomited almost without cessation and steadily grew weaker, but she retained her nutrients well, and by six days she was able to take a little nourishment by mouth. Gradually the vomiting quieted down, and in time she gained strength, appetite, and was discharged six weeks after operation, without symptoms and in fairly good condition.

In September, 1903, she reported that she had gained thirty-five pounds, that she had had occasional vomiting since leaving the hospital, and that in May, after a severe attack of vomiting and strangling, she felt something sticking in her throat, which she vomited up, and which she described as a blood clot the size of a small egg. It probably was the button, which had slipped into the stomach and was thrown up in this way, although the vomitus was not examined at the time. She was more or less sore afterward, as though some metal substance had scraped her esophagus, but since then she had had less dyspepsia and vomiting. About once a month she had some nausea and vomiting, but was able to do her own housework, eating simple food.

In April, 1904, she reported to the Gynecological Department that she still vomited blood at times, but was under treatment for pelvic trouble.

No. LXXIII. Female, twenty years old, referred by Dr. Ferguson in April, 1903.

For two years she had had epigastric pain, coming on after eating, with, at times, vomiting of blood.

A year before I saw her there was pain and vomiting immediately after eating, with epigastric tenderness, and she was obliged to give up her work. At that time she developed tuberculosis of the lungs and was treated accordingly, with considerable relief to her pulmonary trouble. She was unable to eat solid food without severe epigastric pain. There was diminished hydrochloric acid in the stomach contents, and examination suggested functional rather than organic disease. She was anemic and operation was advised more in the way of exploration than with a view to finding any organic lesion.

At operation at the Boothby Hospital, the stomach was found somewhat dilated and there was some induration, but the lumen was normal and along the greater curvature some enlarged lymph nodes were found. The examination of the interior of the stomach showed a slight roughness close to the pylorus that suggested an ulcer or a scar. An anterior button anastomosis was made and the wound closed. The patient was in poor general condition and extensive operation was not permissible. Convalescence was satisfactory and she left the hospital in good condition, relieved of her stomach symptoms.

No. LXXIV. Female, twenty-one years old, had suffered from stomach trouble for five years. Three years ago she had had hemorrhage, preceded by epigastric pain, especially after eating, and at that time she had not only hemorrhages from the stomach, but from the bowels. Was in bed four months, then had more or less retching and vomiting of coffee grounds, the vomiting coming on at once or about an hour after eating. Under the care of a stomach specialist she grew stronger and gained weight, but the conditions recurred about three months before I saw her, and she began vomiting, lost weight, and suffered from pain in the epigastrium after eating, with relief from vomiting. Examination showed tenderness to the left of the median line in the epigastrium. The stomach was apparently contracted. On account of the long duration of her dyspepsia, the hematemesis, chronic invalidism, persistent pain in the epigastrium, and recurrence in spite of long medical treatment, exploration was advised.

At operation, at the Carney Hospital, November, 1903, the stomach was found sagging a little downwards and to the left, but the pylorus appeared free and open. Gall bladder region was negative. No scars nor evidence of ulcers could be seen on the outside of the stomach. A posterior gastro-enterostomy, in the usual way, was done and the abdomen closed in layers. The stomach, at the time of the anastomosis, contained an excess of dark fluid blood, showing recent hemorrhage. Patient steadily gained in weight and strength and was discharged in three weeks, eating ordinary diet.

When seen in May of this year the patient was eating heartily of ordinary food, without trouble except that recently she had had some hiccough and was troubled with constipation. Both of these cleared up under simple remedies.

No. LXXV. Male, seventy-six years old, was seen with Dr. Brown of Newburyport in consultation, in September, 1903.

Three years before he had had a severe universal dermatitis, from which he had been entirely relieved. A year afterwards he began to have symptoms of duodenal ulcer, although for many years he had had indigestion, lasting for a week or more, coming on about two hours after meals, without vomiting, and ceasing on milk diet. In attacks two years and one year ago he had had tarry stools, and in the latter attack was in the hospital on rectal feeding, for three weeks. The pain persisted, however, for some time after discharge, gradually subsiding. For a year he had dieted more or less, and when I saw him there had been fresh blood in the stools for two days. Previous to this the blood had always been digested. For a month he had had quite constantly a mild distress in the stomach, not relieved by milk diet. He was healthy, with slightly atheromatous arteries, and just above the umbilicus a small, slightly tender swelling could be felt. Owing to his age and his success under rectal feeding in his preceding attacks operation was advised against. Two months later, not having gained at all and being obliged to resort to rectal feeding more or less of the time, operation was advised.

At operation, at the Newburyport Hospital, a thickened ulcer of the duodenum just beyond the pylorus was found, with recent adhesions and an appearance of beginning perforation. A posterior gastro-enterostomy, with clamps, in the usual way, was made and the wound closed in layers. The patient made an uneventful recovery, without pain or vomiting, food was taken early, and three weeks later, at Thanksgiving, he was able to eat a complete dinner without distress. Up to the present time the patient remains perfectly well.

No. LXXVI. A woman, forty-three, years old, referred by Dr. Boland.

Patient had had emphysema for several years, and for six months had had severe attacks of abdominal distress, at times so severe that she screamed with pain, being unable to lie down and obliged to sit up on the edge of the bed until exhausted. These attacks came on about midnight, rarely in the daytime, and rarely was there vomiting. The pain and distress were always referred to a point to the right, above the umbilicus. She had lost weight and looked badly. Examination showed absence of liver dullness in the normal situation. Both kidneys were prolapsed. The intestinal coils were plainly visible. So far as could be determined the severe attacks of asthma were caused by the gastric distress. Only partial relief could be obtained from nitrite of amyl. From the fifth rib downward the chest was markedly scaphoid.

During operation, at the Carney Hospital, in December, 1903, the patient was moderately cyanotic throughout, but had no attack of asthma. The liver was found prolapsed, lying entirely below the costal margin, the diaphragm itself lying almost on the level of the lower cartilages and the lower border of the right lobe at the level of the pelvic brim. The stomach, also, was prolapsed, as well as the first portion of the duodenum, but the second and third portions were apparently not depressed. The pylorus was thickened but not indurated, the lumen admitting the tip of the finger. The gall bladder and ducts were normal. A posterior gastro-enterostomy, with clamps and sutures, was made, the mesocolon being found firmly adherent, in places, to the stomach, but no scars were seen.

The patient convalesced satisfactorily from the operation, her asthma disappeared, and in three weeks she was discharged, in good condition. Since then the stomach has caused no trouble but she still has asthmatic attacks.

No. XXVII. Male, thirty-six years old, was picked up, in August, on the railroad tracks, lying in a pool of vomited blood, and was brought to the Carney Hospital at once.

He had been feeling ill for a week and everything he ate caused distress. That morning, before the hemorrhage, he noticed a black stool, and felt weak and unable to go to work. While walking on the railroad track, to his work, he became weak and dizzy and vomited

both food and blood. After admission he vomited blood a number of times, but refused operation. Adrenalin was given and at the end of three weeks he was discharged, relieved, in much better condition.

In December of the same year he returned, begging for operative relief, stating that for three weeks after his discharge he had felt pretty well and was able to work part of the day for a while, but then gave up because of weakness. He had had no vomiting since he left, but had been unable to eat ordinary food, and two weeks before entrance fainted. Examination showed him pale, with a sunken abdomen and soreness in the epigastrium.

At operation a contracted stomach, with open pylorus, was found, without evidence of scars or induration anteriorly. Posteriorly the mesocolon showed scars as from old inflammation and towards the right was adherent to the stomach. A posterior gastro-enterostomy, with clamps and sutures, was made and the abdomen closed in layers.

For two or three days the patient vomited considerable blood and passed blood by stool, but it was controlled by adrenalin, and at the end of three weeks he was discharged, eating solid food, with marked gain in weight and color. Since then the patient has steadily gained and when last seen was as well as ever.

No. LXXVIII. Male, forty-five years old, entered the Carney Hospital in October, 1903.

In August he had epigastric pain and stasis, followed three weeks later by hematemesis. Since then he had spit up small amounts of blood once or twice a week. A few days before he had had a small hemorrhage, without nausea or vomiting, and he described a lump in his stomach from which the blood seemed to come. He had a good appetite, but could not retain his food and was constipated. He had lost twenty-five pounds, but had never noticed blood in the stools. Distress in the stomach came on after eating. Examination of the stomach showed badly digested food, free hydrochloric acid, no blood.

At operation, by Dr. Bottomley, scars and adhesions were found in the posterior wall near the pylorus. A posterior gastro-enterostomy, with clamps and sutures, was made, and the patient was discharged in three weeks, eating solid food without discomfort.

No. LXXIX. Male, sixty-seven years old, referred by Dr. Stubbs of Newton.

The patient had complained of indigestion for two years and had been on medical treatment during that length of time. In the beginning he had had lavage every second day for three weeks. This was followed by some relief for six months, then the symptoms returned and he obtained no relief from a repetition of the washings. Three months before I saw him he had had marked indigestion, without blood in the stools, the distress coming on two or three hours after eating or at times appearing in the middle of the night. It was described as a dull, heavy pain across the middle of the abdomen. Examination of the stomach showed the lower border an inch and a half below the umbilicus.

At operation, at the Carney Hospital, in December, 1903, a moderately dilated stomach was found, and at the pylorus on the duodenal side was a tumor, not indurated like a malignant growth, apparently occluding the lumen and without lymph nodes in the neighborhood. A posterior gastro-enterostomy, with clamps and sutures, was made.

The patient was discharged in about two weeks, eating and enjoying regular food, without having vomited at all, and up to the present time he is perfectly well, without any symptoms.

No. LXXX. Female, twenty-seven years old, referred by Dr. T. J. Murphy.

Two years before I saw her she had had slight hematemesis, which had disappeared under restricted diet. A year ago she had a relapse lasting several months, accompanied by pain. Relief then followed for about five months, when she consulted Dr. Murphy, complaining of sharp epigastric pain not severe enough at the time to suggest a perforation. Under treatment this subsided until two weeks ago, when the pain returned. Four days before I saw her, vomiting began and two days afterwards this became profuse, at first containing dark, later bright blood. For three or four days the stools had been black, and she became blanched, with a rapid pulse. At my visit I found an exsanguinated, sick-looking woman, with definite tenderness in the epigastrium to the right of the median line, and a rapid, thin pulse. Operation was advised at once. She entered the Carney Hospital and we found, at the pylorus, anteriorly and extending into the lesser curvature, an irregular scar an inch and a half in diameter, indurated and crater-like to palpation, evidently the source of bleeding. A posterior gastro-enterostomy, with clamps and sutures, was done as quickly as possible as the patient was in too poor condition to warrant a pylorectomy. The wound was closed in layers.

The patient recovered steadily, with occasional vomiting, which finally subsided, and at the end of a month or so was discharged in good condition. In May she reported in good condition, with slight dyspepsia for a short time, relieved by limiting her meat diet.

No. LXXXI. Female, thirty-nine years old, entered the Carney Hospital January, 1904, with a history of gastric hemorrhage in profuse amount six and four years previously. For ten years she had had more or less severe pain in the stomach and one month ago the pain grew worse and she complained more of the distress after eating, and vomited. She had lost weight and at entrance was pale, with a mass easily felt under the left costal border, moving with respiration.

At operation, by Dr. Bottomley, the pylorus was found open, the stomach was adherent to the liver all along the lesser curvature, and about three inches from the pylorus below the lesser curvature were adhesions between the stomach, liver and abdominal wall, evidently the site of an old ulcer. The gall bladder was adherent to the duodenum by a broad band. To the left and below the stomach the adhesions were numerous. A posterior gastro-enterostomy, with clamps and sutures, was done, a few adhesions of the mesocolon near the pylorus being found.

The patient convalesced satisfactorily, and in three weeks was discharged, in good condition.

No. LXXXII. Male, fifty-eight, entered the Carney Hospital in February, 1904, with history of indigestion sixteen years previously, obliging him to stop work after two years.

Since then he had had a more or less sore stomach. For two years he had had spells of feeling pretty well, but as a rule, three hours after eating, he had violent pain in the stomach, relieved by enforced vomiting. The vomitus was excessive in amount, of a slimy fluid and very acid. Examination showed sclerotic arteries, a distended stomach filling the abdomen, with a capacity of over five quarts. There was general ptosis as well. At operation by Dr. Bottomley the pylorus was found normal, but surrounded by many adhesions. The gall bladder was normal but adherent to the omentum. The adhesions were freed and a posterior gastro-enterostomy, with clamps and sutures, was made.

The patient rapidly convalesced and in three weeks

was discharged, eating solid food without pain or distress and with relish.

Examination of the stomach contents before operation showed presence of hydrochloric acid.

No. LXXXIII. Female, twenty-five, had been well up to three weeks before entrance to the Carney Hospital, when she had pain in the stomach, with vomiting. For a week she was nauseated but did not vomit, then she went to bed, with a severe epigastric pain, vomiting, and much tenderness to pressure on the abdomen. Since then there had been much sharp pain in the epigastrium, relieved somewhat on lying down. She had not eaten solids for a week, but was able to take liquids.

Examination showed an anemic girl, tender in the epigastrium, with slight spasm over the pylorus. Operation showed at the pylorus numerous old adhesions to the colon and omentum, extending from an irregular scar on the anterior wall of the pylorus, both on the stomach and duodenal side. Close to the pylorus on the proximal side was a pouching of the stomach, with a slight contraction as in a beginning hour-glass stomach. The stomach was not dilated and the pylorus was open, although contracted to about half its normal diameter. The duodenum was mobilized and a gastro-duodenostomy was made by Finney's method and the wound closed.

For a day or two the patient had more or less vomiting, which then ceased, and she steadily gained, eating solid food without distress, and was discharged in two weeks, in excellent condition.

No. LXXXIV. Female, thirty-two years old, was referred by Dr. Hamblen of Maynard.

For three years the patient had been unable to work at her business as a dressmaker. The trouble started with a so-called attack of grippe, which lasted three months and from which she had never recovered, being in bed for several weeks at a time, off and on. She had been unable to take solid food from the first and had been troubled more or less with gas. In some of her attacks she would vomit, but after going to bed and living on liquids the trouble would stop, only to return after eating ordinary food. For over a year she had not eaten a good square meal, and had lost over twenty pounds. The pain would come about half an hour after eating, was worse when lying down, and would last until she vomited, with relief at once. She had vomited retained food and in excessive amount. The distress varied somewhat and was relieved at times by the various medicines for indigestion. She had been very constipated. Examination showed a slightly distended stomach with free hydrochloric acid, and poorly digested food. The lower edge of the stomach was an inch and a half below the umbilicus.

At operation at the Carney Hospital the stomach was found dilated, the upper edge being about an inch above the umbilicus. From the gall bladder a broad sheet of adhesions, thickened anteriorly into a stout band, passed to the anterior wall of the stomach to the proximal side of the pylorus. In addition there were diffuse adhesions over the duodenum. Most of these adhesions were separated and ligated. The pylorus was contracted spasmodically, but admitted the tip of the finger. There were no signs of ulcer. A posterior gastro-enterostomy, with clamps and sutures, was made. Posteriorly, near the pylorus, were some scar-like bands. The gastrohepatic ligament was shortened with catgut and the abdominal wound closed in layers.

The patient convalesced rapidly and was discharged in three weeks, eating solid food, and has remained perfectly well ever since.

(To be continued.)

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

ETIOLOGY OF ALOPECIA AREATA.[1]

THIS subject was brought up in the French Society of Dermatology at the meeting in May, 1904. M. Jacquet, who is well known as an exponent of the theory that many cases of alopecia areata are connected with dental lesions, showed a patient who had suffered since 1902 with alopecia areata of the moustache on the left side. The lesion had started shortly after a severe pain in the teeth of the left side which necessitated the extraction of two molar teeth. There was also hyperesthesia of the left side of the face. The extraction of the teeth arrested the disease. The hair began to grow in, then stopped. The hyperesthesia and increase of temperature on the left side of the face continuing, Jacquet suspected that there remained a remnant of root or bone not eliminated. In point of fact, a small fistulous opening was found which was curetted under chloroform and exposed the extremity of the posterior outer root of the first large superior molar tooth.

During the eight following days, hair continued to fall very quickly, after which it began to grow in so rapidly that in five weeks the area was entirely covered; also the increased sensibility and increase of temperature disappeared immediately after the operation. The hairs, however, did not grow in vigorously, and the recovery could not be considered complete.

In sum, we have here a case of alopecia areata in which the permanence of troubles of sensation made it easy to diagnosticate the presence of an important bit of stump, and where the alternations of alopecia and of regrowth were associated with fluctuations of the deep lesions.

In the discussion, Darier said that since his attention had been drawn by Jacquet to the possible relationship of alopecia areata with dental lesions and other nervous troubles, he had always examined into the state of the teeth in such cases, and had been struck with the fact that in the large majority of cases dental lesions were found, of different varieties, but capable of causing nervous excitement. When there is a lack of dental lesions, there are often symptoms in the region of the trifacial nerve, or vasomotor disturbance. He admits, however, that in some of the cases all such conditions were absolutely wanting.

Brocq also asserted that he had observed an intimate relationship between the appearance of wisdom teeth and certain alopecia areatas. He took occasion to speak of the present rule according to which subjects of the disease under discussion are not allowed in offices and workshops. This is oftentimes a great hardship, particularly in view of the fact that there is no unanimity as to the question of the contagiousness of alopecia areata. For this reason, he proposed the

[1] Ann. de Dermat. et Syph., May, 1904.

appointment of a committee to examine carefully into all the new facts regarding contagiousness and epidemics.

At the same meeting MM. Gauchet and Lacapére presented to the society four cases of alopecia areata which appeared to have been produced by contagiousness. They bear upon the observations of epidemics of alopecia areata in schools and in barracks. Although thinking it probable that many of these had not been accurately studied, in the four cases reported, the diagnosis had been made by different dermatologists of the St. Louis Hospital.

The patient who first appeared was a member of the police force, who had been affected at the same time, or a little after, three other men who belonged to the same squad. These four men were in constant relationship with one another. Every other day they were on guard at the prefecture of police. In the intervals of these duties these men were accustomed to lie down upon the same bed.

Four months ago, one of them saw that his hair was falling. This man was twenty-eight years of age, had been subjected for some time previously to considerable anxiety, and it was soon after the termination of this that there appeared on the right side of the head a small patch of alopecia areata, the size of a fifty-centime piece. Two or three weeks later, two new plaques appeared at the occiput, and a month later the beard and moustache were affected.

About a month after the beginning of this case, the second case appeared in a man of the same squad. He exhibited a small patch on the apex, which rapidly improved under treatment.

Two months after the beginning of the first case, a third man, colleague and neighbor of the first two, developed a small patch of alopecia areata in the beard. This man had had a previous attack of alopecia nine years before, for which he was treated at the hospital.

The fourth case, that of the one who called attention to this little epidemic, had been affected for only five or six days. Eleven years previously he had had a similar lesion.

The conclusion is reached that it is impossible to attribute these four cases to any other cause than that of contagion.

Several of the members asserted that it was their custom to give certificates to persons affected with alopecia areata to the effect that the disease was only contagious by direct contact; and that a person could be received at a workshop or office provided the head was kept constantly covered.

Hallopeau asserted that people who constantly have their head covered do not generally have alopecia areata. None of the Sisters of Charity are affected in the hospitals, while members of the medical corps are not infrequently affected.

At the conclusion of the discussion, a commission was appointed to examine thoroughly into the question of the contagiousness of alopecia areata.

LEPROSY IN BRITISH GUIANA.[2]

British Guiana is a territory which comprises an area of one hundred thousand square miles. The population is about three hundred thousand, of which one third are East Indians, about ten thousand aboriginal Indians, and the remainder Europeans, Portuguese, Chinese and negroes. It is believed that leprosy was introduced by negro slaves from Africa in the period of slavery. The only Indian tribe in Guiana that has been affected with leprosy is the Warraws. In an official report made in 1878, the writer gave a table showing an increase of 160% of cases of leprosy during the twenty years between 1858 and 1878, during which time 1,120 cases of leprosy were dealt with in the asylums. Of these 657 were negroes. The largest number of cases came from the parish which is situated in one of the healthiest parts of the country, so that the excess in the number of cases here could only be explained by the free communication with the surrounding neighborhood that was allowed these people.

The types of disease met with were similar to those in most tropical countries. Twenty-one per cent were of the tubercular type, 62% nerve leprosy, and 17% were mixed cases. About one in every two hundred and fifty of the inhabitants of Guiana suffered from some form of leprosy.

This paper is intended as a plea for leper asylums for these unfortunate people. Something has been done in Guiana in the line of improving the asylums, but they are still far from good. The writer thinks that cases of nerve leprosy should be dealt with much less strictly than cases of tubercular leprosy, and that every case of the latter type should be placed in a properly constructed asylum unless satisfactory arrangements can be made for home treatment and isolation.

PAGET'S DISEASE OF THE UMBILICUS.[3]

The patient, who was shown on two separate occasions to the London Dermatological Society, was a sailor, sixty-five years of age. He had been previously well, with no family history of cancer. He exhibited in the umbilical region a round exanthematoid patch about two inches in diameter which had been gradually forming for about eleven years. The central part was ulcerated and exuding, covered over in parts by epithelium. There was a raised broad border, over which the cuticle was intact. There was considerable infiltration. The case proving rebellious to treatment, a bit of tissue was excised, which showed it to be an example of Paget's disease. The diseased skin was then removed surgically.

Histologically, there was great proliferation of the epidermis, the interpapillary processes extending deeply downward, but ending at about the same level in the corium. The cell inclusions, which were erroneously described by Darier as coccidia, were present throughout the epidermis. The corium was densely infiltrated with cells, which were especially numerous about the blood

[2] J. D. Hillis. Lepra. Vol. IV, fasc. 2. 1904.
[3] Brit. Jour. of Dermat. Feb., 1904. Fox and Macleod.

vessels. These were generally plasma cells, with a few leucocytes and connective tissue nuclei. The writers then presented a very good résumé of the literature of Paget's disease. It was in 1889 that Darier first noticed the remarkable changes which accompany the proliferation of the epithelium. He believed the peculiar bodies found in the epithelium to be coccidia, and the cause of all the trouble. All of the earliest cases affected the nipple so that the name of Paget's disease of the nipple became the customary one. In this situation it is diagnosticated by the age of the patient, mostly between forty and sixty, by its chronicity and slow progression; and it is distinguished from ordinary eczema by its bright red color, hard, raised border, and islands of epithelium in the diseased area. The precocious retraction of the nipple is also a marked feature.

Darier states that he has seen a dozen cases of epithelioma elsewhere than on the breast, with slow progression, well-defined borders, slight induration of the surface, and sometimes ulceration, which clinically differed very little from Paget's disease.

In 1889, Radcliffe Crocker described a case of a man of sixty who presented the disease at the root of the penis and scrotum; it spread rapidly over the whole of the left half of the scrotum, reaching the pubes. Other cases have been observed in France and England where the affection was situated about the anus and pubes, also about the female genitals. A case in this situation has also been reported by Fordyce in this country.

Remarking on the histology of the case reported, the writers conclude that the microscopic appearances were identical with those found in the typical cases situated on the nipple. There was no evidence of definite malignant change in the epidermis. They did not believe, as has been asserted, that the peculiar change in the epidermis is malignant from the first, any more than that ordinary warts or pigmented nevi are all malignant from the first. They may all be described as pre-cancerous lesions of the skin, which have a tendency to become malignant.

In this case a portion of Meckel's diverticulum was included in the center of the umbilicus, which may have been a coincidence, although it is a suggestive one.

The general histological appearances suggest chronic inflammatory disturbance, involving the papilli and leading to proliferation, edema, and degeneration of the epidermal cells and the formation of a resistant cellular infiltration in the upper layers of the corium.

The writers can throw no light upon the important question of the actual cause of this precancerous dermatitis and subsequent carcinoma. Although Darier's theory that the degenerated cells were coccidia and caused the disease has been abandoned by all, including its author, a parasitic origin would fit in very well with the clinical appearances and course of the disease.

Jungmann and Politzer,[4] in a very recent article, report a case of Paget's disease in which the axilla was the starting point of the process, and the nipple was not affected until thirteen years later. The woman was forty-six years old when the affection began in the left axilla as a small, red, oozing spot which greatly increased in circumference until, four years later, it had reached the size of the palm of a child's hand. At this time, she was seen at the Vienna Hospital, where the diagnosis was that of eczema. A long course of treatment had no effect upon the disease.

When taken into the hospital a second time, in 1903, the affected area extended on the left side of the chest from the axillary hollow as a center, on one side over the anterior half of the thorax, on the other side, behind, as far as the region of the scapular. It was also present on the inner surface of the upper arm. In the central, excoriated portion of the affected tissue, a hard infiltration of the deeper tissues was observed, and a fungous, ulcerated tumor of the size of a fig was situated on the anterior axillary fold. There was also a large nodule on the upper arm. The arm was lifted from the chest with so great difficulty that it was impossible to determine whether or not the deeper glands were affected.

On account of the favorable action of the x-rays on cancer of the skin, the patient was put under this treatment and with most gratifying results. After two or three weeks, there was a reaction of the first grade, after the subsidence of which the skin began to heal and the tumors to undergo involution. The general condition, also, improved continuously. At the time of writing, the parts were covered with solid epithelium and the tumors had practically disappeared.

Histologically, the appearances were those that have been shown to be characteristic of Paget's disease, and included the peculiar cell inclusions which have been described as coccidia.

The authors rightly protest against the retention of the name "Paget's disease of the nipple," inasmuch as the affection has been found in so many other localities.

[4] Dermat. Zeitsch., June, 1904.

RADIUM IN CUTANEOUS AFFECTIONS.

At a meeting of the Berlin Medical Association on May 4, of the current year,[5] Lassar demonstrated patients and showed lantern slides illustrating the therapeutic action of radium. He said that during the last half year, he had treated a number of patients in this way, especially those afflicted with superficial tumors. It was demonstrated that this method of treatment was entirely harmless. When patients were daily treated for half an hour with one milligram of radium in small capsules bound down to the part treated by plaster, no inflammatory or necrotic results were produced. Numerous patients and pictures were shown illustrating the effect of this treatment on epitheliomata of the face. One case had been treated without success by various other methods and entirely healed by radium. It has been clearly shown that it is chiefly new

[5] *Ibid.*

growths that are healed by radium; and its great advantage over other similar methods is its easy application by an unskilled person. The cost is still high, but much less than that of the Röntgen apparatus, which requires also the services of attendants, etc. It also has a great advantage in that it is inexhaustible.

In regard to disagreeable occurrences, if there is the slightest sign of inflammation, redness, or swelling, the procedure should be interrupted. It is most important, however, that the physician should keep a personal supervision.

Other cutaneous affections were tried by this method. A case of obstinate, long continued psoriasis was completely relieved. The author is also able to record some favorable results in carcinoma of the breast. Naturally, this treatment does not take the place of surgery, and is applicable only to superficial lesions. Recurrent cancers may be satisfactorily treated in this way.

LARVA MIGRANS.[6]

Lengtel and Delaunay reported the following interesting case which they saw at the Hôpital Broca. It occurred in a man thirty-nine years of age who had had, three weeks previously, a furuncle of the outer part of the calf. He treated it by a remedy of his own composition, namely, a poultice made from a dozen living snails, which he procured at the market. Shortly after this the furrows appeared.

When seen, he presented on the right part of the calf a plaque of lymphangitis as large as the palm of the hand, which bore in its center the scar of the original furuncle. Over this plaque were there numerous tunnels like enormous scabietic burrows, of reddish color at the border, white at the center, and flooded with sero-purulent matter which was collected here and there in droplets. These tunnels or galleries were irregular and tortuous. There was some intermittent pruritus. All attempts to find the parasite were vain, in spite of repeated examinations.

Histologically, the tunnel is seen situated in the upper layers of the rete, which is never destroyed in its lowest layers. The horny layer was almost intact, simply elevated by the exudation which filled the furrow. Parallel to the large furrow were numerous very small secondary furrows whose lumen opened into the central furrow. The writers conclude that the affection has all the appearances of a parasitic disease, and the eosinophilia which they observed about the furrows tended to confirm this theory. It is probable that the parasite, which they were unable to detect, is very small. The tunnel seems to be the effect of a process of digestion, a late reaction of epithelial tissue to the toxins, or dejections left by the larva. There is little in medical literature upon this subject, and no agreement in the results of different dermatologists. The disease is said to have been observed frequently in Russia, especially in the eastern part. There the parasite is thought to be of large size. The affection was named hyponomoderma by Kaposi. Lee described it as a creeping eruption, while Crocker and Stelwagon named it larva migrans. In Lee, Crocker and Stelwagon's cases, the parasite could not be found.

Some authors consider that the parasite is a larva of gastrophilus, which is transmissible from herds to man. Neumann, who was unable to find the parasite itself, thinks that it is due to an acarus. In the case described, it is assumed that the snails were the vehicle of infection.

On the whole, the parasite has never been found except by Russian authors. In other countries the most careful search has been unable to detect them. The patient was treated with applications of tincture of iodine, at first upon the central part. During this time the furrows at the periphery continued to increase, but no new tunnel started from the center. The applications of iodine were then extended to the whole of the affected territory, and under this treatment the patient rapidly got well, which they regarded as a proof of the superficiality of the parasite.

[6] Ann. Dermat. et Syph. Feb., 1904.

Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

PROCEEDINGS OF THE TWENTY-FIFTH ANNUAL MEETING, HELD IN ST. LOUIS, JUNE 14, 15, 16 AND 17, 1904.

(Concluded from No. 7, p. 194.)

A MECHANICAL DEVICE FOR GASTRIC AND INTESTINAL ANASTOMOSIS.

DR. F. B. HARRINGTON of Boston described a ring for the purpose of intestinal anastomosis.

The advantages of this ring were stated as follows:

"1. Safety and speed. A complete resection and suture can be easily done in fifteen minutes, and with as great speed as by any more protracted method.

"2. Cleanliness. Assisted by clamps, the purse-string sutures prevent even a mucous ooze, while the continuous stitch is being placed.

"3. The intestinal suture is more easily done over the ring than without it.

"4. It is safe to use a single layer of continuous stitches, since the ring allows a perfect approximation to be made, and afterwards protects the suture until adhesions have formed.

"5. The handle is very useful for holding the intestines in convenient positions for sutures.

"6. It is not necessary to sew up any of the layers, since a study of specimens from animals and human beings shows that the mucous membrane will slough in any case, and that repair is more rapid when the mucous membrane is not sutured.

"7. The presence of the ring guarantees a free opening at the site of operation.

"8. In case the continuous stitch should be improperly applied, the weak spots are protected by the ring itself, for at least three days, until the ring breaks down. This allows strong adhesions to form.

"9. After operation the ring holds the suture immovable, and acts like a splint. The weights of the individual segments of the ring vary, as most other appliances of a similar nature."

Conclusions. — The author drew the following conclusions:

"1. The process of repair is as rapid after the use of the segmented ring as after a plain suture.

"2. The time required for the operation is, on the whole, less than that required for a straight intestinal suture.

"3. Certain objections, such as weight, ulcer, difficulty of passage, etc., inherent in other mechanical contrivances, are minimized by the ring.

"4. The analogy between the experimental and human observations is so close as to show the propriety of the deductions made from animal experiments.

"5. The employment of the ring in human beings is safe and satisfactory."

In the discussion of Dr. Harrington's paper, DR. J. W. DRAPER MAURY of New York City, by invitation, stated that instead of using the elastic ligature at the laboratory of Columbia University, they had been employing twine. The specimen which he exhibited was made with the elastic ligature, put in by a square knot, thus differing from Dr. McGraw's technic; but for the last three months he had obtained as good results by using simple twine instead of the elastic ligature.

The method of introducing the twine might follow the McGraw technic, although the triangular stitch possessed a very distinct advantage over it. This stitch punched out as much tissue as might have been included in the triangle. As to time, it would cut through in less than three and a half days. It must be very tightly tied. This was the sole requirement to success.

Dr. Maury then demonstrated on a chart the technic of introducing the triangular stitch, and stated that he included about one third the circumference of the gut in the stitch. The gastric triangle should, as a rule, be made larger than the intestinal.

He then passed around photographs of specimens made by this method, and a preparation from the gut of a pig, which demonstrated how free an anastomosis might be established. He also showed a number of circular bits of twine, which had been used in executing the technic. They had cut the triangle out and had been recovered after their passage through the rectum.

THE SUBTLE FORCE OF RADIUM.

DR. ROBERT ABBE of New York City narrated his experience with this new therapeutic agent, saying that radium had a powerful and seemingly beneficial effect upon cases of recurrent carcinoma. Cases were cited in point. He mentioned one case of virulent, typical carcinoma of the scirrhus type, in which the carcinomatous nodules were reduced to one third their original size by radiomization. The agent had been used in cases of lupus, superficial epitheliomata, carcinoma, rodent ulcer, superficial sarcomas, etc. In cases of superficial recurrent carcinoma of the breast, if radium was applied to the diseased area for a considerable time, say an hour, then the patient permitted to go, and the agent reapplied at intervals of two or three days, the carcinomatous masses would melt away in some cases. In other instances these masses would disappear under the use of the x-ray, still others would resist the action of the x-ray, while radium would act beneficially. Radium had an extraordinary power in inhibiting the growth of malignant cells in some cases.

DR. W. W. KEEN of Philadelphia said that one positive fact was worth a dozen negative ones. One could not get away from the facts presented by Dr. Abbe and others in regard to the use of radium. On the other hand, members of the profession ought to report their negative as well as positive results. He had had an experience now covering twenty-two cases in which radium was used. Whether his results were due to the quality of radium, to a difference in the character of the growths, to the method of using it, or what not, he did not know. But to sum up his experience, in not one single case had there been the slightest benefit, except in one feature, and that was as to pain. Unquestionably, in cases of carcinoma, patients had suffered less, and in a large number pain had disappeared. In one case of tic-douloureux of the lower jaw the man left the hospital at the end of a month practically well. In the course of six or eight weeks the patient wrote him that he had had a recurrence of the pain. Dr. Keen wrote him to return for treatment, but had heard nothing from him since, and whether the pain had disappeared or not, he did not know. He had used the German instead of the French radium. Some of his specimens had varied from 17,000 radio-activity up to a larger radio-activity, until finally he was able to obtain one specimen with 1,800,000 radio-activity. He regretted to say that his experience had not been satisfactory with the use of radium.

GASTROSTOMY IN ESOPHAGEAL STRICTURE.

DR. JAMES H. DUNN of Minneapolis, Minn., said that cicatricial stricture was the most serious benign affection of the esophagus. Retrograde and through and through treatment of certain esophageal strictures had been recognized since the operation of Loretta, in 1883; but discoveries and improvements in operative technic had finally completely changed the situation, leaving surgeons in a position to approach one of these cases with a very safe and certain technic, and to fill the following indications: (1) A gastric fistula which would not leak, and close spontaneously. (2) To get a reliable guide through the canal with perfect safety and certainty. (3) To divide the scar tissue sufficiently. (4) Relative asepsis and rest of the wounded surface, prevention of stagnation of food, and for a time the irritation of its passage.

The value of the Stamm-Keder form of gastrostomy was generally understood, but it was only when one fully appreciated by experience that any esophageal stricture might be commanded perfectly and with precision by means now at hand, through very small gastric fistulæ, even the size of a No. 20 French catheter or less, that all the advantages of the method appeared. The steps of the operation were described. A modification of Dunham's wire and spindle bougies was suggested as somewhat simpler and more handy. The writer had not found it necessary to use guards to protect the epiglottis and stomach fistula from chafing. By this plan but one anesthesia was necessary in each case. The fistulæ had not leaked and had promptly healed spontaneously. A caliber admitting of free swallowing was reached in from one to three weeks, and an approximately normal caliber achieved in from two to four months, after which the tendency to relax had been imperceptible. The author reported three very severe cases, one in a girl, aged nineteen, following typhoid ulceration, and two in children, aged nine and two years, from the ingestion of concentrated lye. Repeated attempts had failed to reach the stomach through the mouth in all these cases.

SURGERY OF NERVES; THE BRIDGING OF NERVE DEFECTS.

DR. CHAS. A. POWERS of Denver, Colo., said the difficulties in the way of preparing a satisfactory paper on this subject were due to the indefinite manner in which nerve suture was treated in medical literature, to the widely scattered and badly indexed material

collected and published by Chipault, to the fact that much of the material in the literature of the subject described operations upon animals, that a large proportion of operative cases in men were reported before the establishment of a permanent result, and to the fact that in case of failure it was not easy to say that a given bad result was due to a faulty technic in the operation itself as a similar result might have followed direct suture of the fragments.

The author reported in detail a personal case of transplantation of four inches of the great sciatic of a dog to the external popliteal of a man. Union was prompt. The fragments stayed in place, and the immediate result seemed to be encouraging, but the ultimate result was a total failure. Examination and report were made eight years after operation.

Cases of the bridging of nerve defects gathered from literature showed the following number: Grafting, 22; flap operations, 11; implantations (anastomosis), 10; resection of bone, 7; *suture a distance*, 3; tubulization, 1.

Analysis of these cases showed that grafting was a failure and should be discarded, while the results in flap operations and anastomosis were about the same, something over 50% of the cases being successful. While these last operations were not very promising, they seemed at present to be the methods of choice.

FINAL RESULTS IN SECONDARY SUTURE OF NERVES.

DR. EMMET RIXFORD of San Francisco, Cal., reported three cases of secondary nerve suture, of the ulnar at the wrist, of the musculo-spiral and the facial at the stylo-mastoid foramen, six, four and two years, respectively, after operation. In the first case the atrophic thenar, hypothenar and interosseous muscles regained their normal volume and function, save in so far as motion of the fingers was limited by adhesions, the result of fixation and chronic arthritis. In the second case the musculo-spiral nerve was sutured eight weeks after rupture complicating a fracture of the humerus. A defect of three centimeters was overcome by shortening the humerus that amount, and the result after four years was complete motor and sensory restoration of function, with slight atrophy, one-half centimeter difference in circumference in the forearms. In the third case the facial nerve was severed by a narrow tooth beneath the mastoid process. Complete facial paralysis. Suture at eight weeks after the injury. In order to secure tissue for the sutures, the mastoid process was cut away with the surgical engine, and the external wall of the Fallopian canal removed for five or six millimeters. Result after two years: Face symmetrical, when in repose; eye closes in sleep; may be closed at will; angle of mouth, tip of nose and chin can be drawn to the paralyzed side.

The prognosis in secondary suture was but little, if at all, inferior to the prognosis in primary suture. In the presence of infection, secondary suture was preferable to primary.

All scar tissue should be removed, including the whole of terminal neuroma of central segment, the nerve ends united by absorbable suture with the least possible traumatism. Defects, if not too great, could be overcome by stretching, which should be done before section of the nerve ends, or by shortening of the bone in certain cases.

PRIMARY CARCINOMA OF THE LIVER.

DR. LEONARD FREEMAN of Denver, Colo., reported a case of primary carcinoma of the liver on which he had operated, with freedom from recurrence at the end of sixteen months. After dealing with the different methods of operating, he reported his case in detail.

THYROIDECTOMY FOR EXOPHTHALMIC GOITRE, WITH REPORT OF 40 CASES FROM 128 OPERATIONS UPON THE THYROID.

DR. CHARLES H. MAYO of Rochester, Minn., in a paper with this title, said the subject of goitre was still unsettled, both as regards etiology and treatment, although hundreds of articles had been written upon it. Recent investigations concerning the lymphatic system and ductless glands rendered the subject very interesting at this time. Exophthalmic goitre was a distinct type, with many symptoms, involving the mental, muscular, digestive and circulatory functions, the most common being the tachycardia without other cause. While the mortality was comparatively high, it was among those cases which had already run the gauntlet of most known remedies for the disease, and should not be entirely laid at the surgeon's door.

The surgical methods were exothyropexy, ligation of the thyroid arteries, removal of the cervical sympathetic ganglia, thyroidectomy, and the physiological effect of operations upon other regions.

The author and his brother had operated upon 130 goitres; 40 were of the exophthalmic type, and of these, 6 died as the result of the operation. In the first 15 there were 4 deaths due to lack of judgment in accepting almost moribund cases. There were but 2 deaths in the last 25 cases.

Very severe cases were subjected to x-ray exposures, and with belladonna given internally for a few days or weeks previous to operation.

Their own cases showed marked improvement in all who survived the operation. Of these, 50% made a very early recovery, especially of the severe symptoms, such as tachycardia, nervousness and tremor; 25% did so after several months, and 25% were improved, yet suffered from irregular recurrence of some of the major symptoms.

GALLSTONES IN THE COMMON BILE DUCT.

DR. S. H. WEEKS of Portland, Me., read a paper on this subject, in which he considered the diagnosis and prognosis, and said that impaction of a gallstone in the common duct rarely caused marked distention of the gall bladder; it caused dilatation of the branches of the hepatic duct, and might result in pronounced and even fatal jaundice. Obstruction of the common duct was always accompanied by jaundice. The jaundice was intermittent or remittent where the calculus floated in an enlargement of the common duct, because the system would eliminate the coloring matter of the bile in the interval. The cystic duct might be occluded and give rise to grave symptoms without there being any trace of jaundice or any history of biliary colic. Jaundice with distended gall bladder not due to gallstones was presumptive evidence of malignant disease. Jaundice without distended gall bladder favored the diagnosis of cholelithiasis.

As to treatment, it was necessarily surgical.

DR. A. F. JONAS of Omaha, Neb., read a paper on "Primary Splenomegaly, Accessory Spleens, Splenectomy," and reported an interesting case.

DR. S. J. MIXTER of Boston reported a case in which he removed the upper jaw for extensive osteosarcoma, with an excellent result, considering the formidableness of the operation.

DR. RUDOLPH MATAS of New Orleans, La., exhibited and described a new interdental splint which he had recently devised for the treatment of fractures of the jaw, particularly the lower jaw, without bandages.

DR. ALEXANDER HUGH FERGUSON of Chicago exhibited a patient upon whom he had performed renal decapsulation for chronic interstitial nephritis three and a half months ago, with an excellent result.

OFFICERS.

The following officers were elected: President, Dr. George Ben Johnston of Richmond, Va.; vice-presidents, Dr. Emmet Rixford of San Francisco, Cal., and Dr. James Bell of Montreal; secretary, Dr. Dudley P. Allen of Cleveland, O.; treasurer, Dr. George R. Fowler of Brooklyn, N. Y.; recorder, Dr. Richard H. Harte of Philadelphia; councillor, Dr. N. P. Dandridge of Cincinnati, O.

San Francisco, Cal., was selected as the place for holding the next meeting, the date to be decided by the officers and committee of arrangements.

ORGANIZATION MEETING; NATIONAL ASSOCIATION FOR STUDY AND PREVENTION OF TUBERCULOSIS, HELD JUNE 6, 1904, AT ATLANTIC CITY, N. J.

DR. WILLIAM OSLER called the meeting to order at 8.30 P.M. Fully two hundred persons were present. Dr. Osler spoke of the need of an organization that was representative of the medical profession, stated the steps that had been taken and asked Dr. E. L. Trudeau to read the constitution and by-laws as prepared and printed by the committee. Dr. Trudeau was greeted with much applause. Dr. Sternberg moved the adoption of the articles as read. Dr. J. Solis Cohen moved an amendment, so that changes in the by-laws might be proposed by the Association as well as by the Board of Directors. After discussion and acceptance of this and several minor changes, the constitution and by-laws were adopted.

Dr. Trudeau, in presenting the list of directors, said that they had been chosen in proportion to the number of men in each state actively interested in the subject. The following list was unanimously adopted:

Massachusetts, E. O. Otis, V. Y. Bowditch; Connecticut, Foster; New York, Knopf, H. M. Biggs, E. L. Trudeau, Mr. Devine; Pennsylvania, Flick, Ravenel, Anders, Pearson; New Jersey, Mr. Hoffman; Maryland, W. H. Welch, William Osler, H. B. Jacobs, Fulton; District of Columbia, G. M. Sternberg; North Carolina, Minor; Colorado, Solly; Illinois, Klebs, Babcock; Minnesota, Bracken; Missouri, Porter; Indiana, Hurty; Michigan, Vaughan; Ohio, Probst; California, Bridge; Texas, M. M. Smith. Public Health and Marine Hospital Service, Surgeon General Wyman; U. S. Army, Bushnell, Fort Bayard.

Dr. Osler opened an informal discussion of different aspects of the work by suggesting that meetings be divided into three sections: sociological, clinical, pathological and bacteriological. Dr. Barry, Louisiana, made an earnest plea for special attention to the study of tuberculosis among the negroes. He said that the disease had made alarming progress among them during the last ten years. Where the population was equally divided, the doctor would see twenty cases among the negroes to one among the whites.

Another suggestion was a Committee on Publicity to help on the education of the people in regard to tuberculosis through the lay press in addition to a special journal.

Mr. Devine of New York, editor of *Charities*, in a very earnest address spoke of the significance of the awakening of the lay mind to medical problems. He suggested that the Association needs first of all an efficient executive secretary. Practical articles were needed to educate physicians in regard to the details of management. Dr. Wells of Chicago said that tuberculosis is diminishing. That first the people must be reached through the lay press; second, the school teachers must be specially instructed, and third, the medical profession must be aroused to the importance of preventive measures.

DR. TRUDEAU was greeted by prolonged applause. He said that the dispensaries must give the patients directions and spit-cups; that hospitals were needed for the hopeless cases, as well as for the curable. He would have lectures given to physicians on the importance of early diagnosis; that the disease begins long before the bacilli are coughed up in the sputum. He spoke with feeling and gratitude of the increased interest in the subject since he first began alone in the mountains thirty years ago.

DR. HERMAN M. BIGGS of the New York Board of Health said that there were now in New York six special dispensaries for tuberculosis, with twenty-five trained nurses visiting among the patients. There were 1,600 beds available for advanced cases. The Board had recently provided several pavilions for cases removed by force, or vicious and insubordinate cases discharged from other institutions. About 400 cases are reported each week, and 16,000 in a year. If they are attended by a private physician, they are simply registered, and the physician is asked at the end of the year whether they are still under observation. Severe cases are visited by a nurse three or four times a month. Efforts are made to stimulate early diagnosis. The free examination of sputum has been a great help in this respect. When first established, only 400 specimens were sent in during a year. Recently on one day there were 178 specimens sent in. The death-rate in the last seventeen years has been reduced 40%, and in the next ten years it should be reduced at least 40% more.

DR. KNOPF said that no community is too small to have a committee on prevention of tuberculosis, consisting of physicians and interested laymen.

DR. HICKLING of Washington told of the organization of lectures in the public schools, at mothers' meetings, in kindergartens, and, through the Associated Charities, in various church parlors. Usually there were three ten-minute addresses at each meeting, one illustrated.

DR. HUBER of New York spoke of a journal for the Association, and on motion it was voted that "the sense of this gathering is that such a journal should be established."

A meeting of the directors was called immediately after adjournment.

Recent Literature.

A Guide to the Clinical Examination of the Blood for Diagnostic Purposes. By RICHARD C. CABOT, M.D. With colored plates and engravings. Fifth Revised Edition. pp. 549. New York: William Wood & Co. 1904.

This latest edition of Dr. Cabot's well-known book is fully up to the standard of the previous editions. An extended review can only be a repetition of those of the past. As stated in the preface, about ninety pages of new matter have been added and about twenty pages stricken out. The most important changes are due to the introduction of the "Romanowsky" staining method for routine blood examination. A new set of colored plates prepared from specimens stained in this way has been added. Considerable additions have been made to the chapters on Infectious Diseases and Blood Parasites, and minor changes on almost every page in the book.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, AUGUST 25, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

Subscription Terms: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 and 29 Bromfield Street, Boston, Mass.

DR. OSLER AND OXFORD UNIVERSITY.

The announcement of the appointment of Dr. William Osler to the Regius professorship of medicine in Oxford University has been succeeded by the not unexpected news of his acceptance of the position, although his connection with the Johns Hopkins University will not be severed for nearly a year. Dr. Osler has for many years occupied a somewhat unique position in American medicine. Born a Canadian, a student of medicine at McGill University in Montreal and at Toronto, later a teacher in medicine at McGill University, and pathologist to the Montreal General Hospital, then elected to the chair of clinical medicine at the University of Pennsylvania, and finally to the chair of medicine in the Johns Hopkins University, he has had an experience as a teacher of medicine to which few attain. Well knowing his fondness for the country of his birth and all things English, he had so long identified himself with the United States, that it was with considerable surprise that we learned of his intention to end his immediate connection with this country, even for so tempting a field as that which now opens before him. Not only the Johns Hopkins University but the entire medical profession in America may well feel a certain pride in this choice for the Regius professorship at Oxford. That Dr. Osler is fitted by training and education for the position no one can gainsay. It is as little open to question that he brings to it a peculiar charm of manner, breadth of culture and broad-minded attitude toward medical problems which it would have been difficult to have found associated in any other single individual.

Experience no doubt has taught the Johns Hopkins Medical School to accept with equanimity changes in its faculty. Few institutions have provided men of capacity for positions of trust more widely than she. The departure within comparatively recent years of Councilman, Flexner, Barker and many others for other fields of work must have left places difficult to fill, but the going of Dr. Osler takes from the university one of the two men who have long stood in the very forefront of medical progress in this country, and means a loss which in the ordinary course of events can never be compensated.

It is interesting also to note the vast difference between the university he leaves and the university to which he is going. The Johns Hopkins University has long stood for the most modern method in medicine and the most progressive ideas, whereas Oxford, with a past of glorious traditions in many fields of knowledge, has often lagged behind in the march of medical science. Dr. William Collier, in the President's address at the recent meeting of the British Medical Association, drew attention to the revival in the teaching of medicine which has lately come to the University of Oxford. Twenty-five years ago the medical faculty had fallen from its previous high estate, and the university was no longer a definite factor in the training of physicians. In 1878 bitter complaint was made of the neglect of the study of medicine at Oxford, and there was no unanimity of opinion as to the possibility or desirability of reviving the interest which had lagged. The British Medical Association took up the matter, and following the attention excited thereby petitions looking to the establishment of a medical school, in the modern sense, were drafted and signed by many prominent persons. These efforts bore fruit, and in 1882 Prof. Burdon Sanderson was appointed to the newly founded chair of human physiology and histology, a first step toward the establishment of modern medical education in Oxford. In 1895 Sir Henry Acland retired from the Regius professorship and was succeeded by Sir John Burdon Sanderson, whose resignation now leads to the appointment of Dr. Osler. The gradual development of pathology, the controversy regarding vivisection and the various difficulties both financial and otherwise which the University Medical School has suffered do not here concern us. All these difficulties, it is hoped, are of the past, and Dr. Osler will assume his position under conditions which, though vastly different from those prevailing in this country, will nevertheless allow him the fullest opportunity to develop still further his extraor-

dinary powers as a teacher and leader of younger men. Twenty-two years ago the *British Medical Journal* commented on the appointment of Sir John Burdon Sanderson to the chair of physiology as follows:

" Dr. Sanderson has a grand opportunity. He has sacrificed much in order to take up the noble work of organizing a real school of medicine at Oxford. Success in such a work would be the worthy achievement of a lifetime. There will be a universal feeling of confidence that the man who has now put his hand to the plough will not turn back, but will finally surmount every difficulty to his own high honor and to the great gain of the profession of medicine."

This certainly does not apply with equal force to Dr. Osler. The lapse of time has made many definite changes which will not permit a return to the old regime. At the same time we may easily conceive that the opportunities for leadership will still not be lacking at the ancient university; that Dr. Osler will be equal to the task imposed upon him we have not the slightest question.

THE SLAUGHTER OF ANIMALS FOR FOOD.

THE British Committee appointed in January, 1904, " to ascertain the most humane and practicable methods of slaughtering animals for human food, and to investigate and report upon the existing slaughter-house system," has made its report to Parliament.[1] The word "animal" as used in this report includes only cattle, calves, sheep, lambs and pigs.

The committee consisted of Mr. Arthur Lee, chairman, Shirley F. Murphy, chief medical officer of health of London, and five others. The principal persons examined were the chief veterinary inspectors, master butchers, one member of the Prussian Government, Jewish rabbis and other experts in the slaughtering of cattle. In addition to the published minutes of evidence, an appendix contains full information as to the methods of slaughter practised in foreign countries, especially the well regulated systems in use in Denmark, Germany and Switzerland.

The committee states that it has clearly recognized from the first that it would be futile to recommend any methods of slaughter, however humane, which would be impracticable on the score of complication, time or expense, or which would in any way depreciate the utility or market value of the carcasses for human food. " To do otherwise would not only stultify their recommendations, but would do away with any justification for killing the animals at all. The Committee, therefore, makes no recommendations which, in its opinion, are not strictly business-like and which have not been clearly demonstrated to be practical." The report contains general recommendations, designs for slaughter-houses, detailed methods of slaughter, comments upon the Jewish method, and certain suggestions for proposed regulations.

The conclusions of the committee with reference to the Jewish methods are as follows:

a. The Jewish system fails in the primary requirements of rapidity, freedom from unnecessary pain, and instantaneous loss of sensibility, and it compares very unfavorably with the methods of stunning recommended by the Committee.

b. The preliminary operations of " casting "[2] and of forcing the animal's head into position for the cut, are difficult, painful and objectionable from a humanitarian standpoint.

c. The subsequent operation of cutting the throat is at best an uncertain method of producing immediate loss of sensibility, and frequently causes great and unduly prolonged suffering to the animal.

d. Until some method is devised and adopted for rendering the animal unconscious, previous to the "casting" and throat-cutting operations, the Jewish system of slaughtering cattle should not be permitted in any establishment under Government control.

The committee also suggest the following proposed regulations:

(1) All animals, without exception, must be stunned, or otherwise rendered unconscious, before blood is drawn.

(2) Animals awaiting slaughter must be so placed that they cannot see into the slaughter-house, and the doors of the latter must be kept closed while slaughtering is going on.

(3) The drainage of the slaughter-house must be so arranged that no blood or other refuse can flow out within sight or smell of animals awaiting slaughter, and no such refuse shall be deposited in proximity to the waiting pens.

(4) If more animals than one are being slaughtered in one slaughter-house at the same time, they must not be within view of each other.

(5) None but licensed men shall be employed in or about slaughter-houses.

[1] Report of the Committee appointed by the Admiralty to consider the humane slaughtering of animals, with appendix, presented to both houses of Parliament by command of His Majesty. London, July, 1904.

[2] As a result of the inquiries of the Committee, twenty-one rubber pavements were at once ordered for the slaughter-houses at Deptford, in order to break the fall of the cattle, when "cast" by the Jewish method.

MASSACHUSETTS GENERAL HOSPITAL TRAINING SCHOOL FOR NURSES.

In our issue of June 30 we commented editorially upon a proposed change in the training of nurses at the Boston Children's Hospital whereby they were to receive a part of their instruction at the recently organized Simmons College. We are glad to note the fact that a somewhat similar arrangement has been planned for the nurses of the Massachusetts General Hospital. Hereafter, four months of the three years' course will be devoted to work at Simmons College on the subjects of chemistry, anatomy, physiology, bacteriology and sanitation and household arts. It is naturally neither expected nor desired that in the short time devoted to the study of these fundamental subjects more than an outline can be given. For example, in chemistry it is intended that certain of the common inorganic and organic compounds be described with particular reference to their practical application in the problems of nursing. In bacteriology a somewhat complete general knowledge of the distribution and morphology of bacteria is designed, with such practical matters relating to their modes of development, dissemination, cultivation and microscopic examination as may seem fitting for the nurse. Courses in anatomy and physiology are intended to provide knowledge of the general structure and function of the body as a whole and of its various parts.

The plan provides for knowledge which has heretofore been in great measure given during the actual course of training in the hospital. It is evident that such a plan conduces to the best economy of time and effort. The distractions of a hospital to the novice and the constant presence of the practical sides of her calling must stand in the way of a devotion to the fundamental branches, which should be mastered before the actual work of nursing begins. The equipment and methods of Simmons College will no doubt conduce not only to a readier means of acquiring this knowledge, but also to greater thoroughness. Another step in advance in this training school is the withdrawal of the money allowance heretofore granted student nurses. Hereafter, the students in the school will be required to pay in advance a tuition fee, although certain allowances by means of scholarships are made for those who actually require financial aid. Beyond the regular work in the wards of the hospital the work will hereafter include three months' training in obstetrics in maternity hospitals, three months in the details of private nursing at the Corey Hill Hospital at Brookline, and not less than one month as assistants in the operating rooms of the Massachusetts General Hospital.

THE ST. LOUIS CONVENTION AND OVERSTRAIN.

The National Democratic Convention at St. Louis furnished a sad example of the disregard of the elementary rules of health, and should serve as a warning to the managers of future conventions. If it be alleged that the proceedings of the Republican convention were cut and dried beforehand, the Democrats went to the other extreme, and through lack of preliminary preparation and organization, subjected the delegates and a host of spectators to a physical and mental strain from which many will never recover.

Who knows how many hearts and kidneys which, though not perfectly sound, had been doing their work reasonably well, are now showing signs of failure as a result? Seventy-two hours of work by day and shouting by night, without sleep, must put a severe tax on even robust constitutions. If this sort of thing is made to be a part of the machinery of party organization, it is not surprising that there are citizens who hesitate about actively entering upon political duties.

Members of the medical profession know that men past middle life, and these are for the most part the counsellors and props of a political party, men whose organs have lost some of their pristine superabundance of vitality, cannot draw so heavily on their reserve as in their more youthful days without paying the cost in poor health, a shorter life, or both. Hard work seldom kills; prolonged worry and excitement, coupled with insufficient food and lack of sleep, to say nothing of impure air, may tax human endurance to the breaking point.

Although the science and art of medicine has no political leanings, cares for the rich or poor, high or low, good or bad, Democrat or Republican alike, it seems to us that the Democratic party managers are to be taken to task for so managing, or rather mismanaging, their convention as to imperil the health of a large number of men.

MEDICAL NOTES.

Laboratory for Illinois State Board of Health. — The State Board of Health of Illinois is about to establish a laboratory with the best equipment for bacteriological and chemical

work. The laboratory is particularly needed because of the widespread campaign recently instituted against tuberculosis throughout the state. Heretofore laboratory investigations have in great part been carried on in Chicago, and the complete removal of this work to Springfield, where the laboratory will be located, will allow prompter reports and more economical management. The laboratory is to be open to the physicians of Springfield and its neighborhood.

SMALLPOX IN AND ABOUT CHICAGO.— According to the Bulletin of the Chicago Health Department, eight cases of smallpox were discovered and sent to the isolation hospital during the week ending Aug. 13. One of the patients had a history of doubtful vaccination, and the others had never been vaccinated. It is furthermore announced that in Zion City, presided over by Dowie, there have been 29 cases since June 1. An inspection by the health authorities recently showed sixteen cases in the isolation hospital, removed from the city. The cases were of a mild type and well cared for. Precautions are being taken, disinfection and isolation are carried out with intelligence, but vaccination is refused.

THE RIGHT TO SELL SMUGGLED DRUGS. — It is announced that litigation which has lasted since 1898, involving the right of the United States Government to sell copyrighted and patented goods smuggled into the country has been decided against the government. The dispute arose regarding a large amount of smuggled phenacetin, purchased by local agents from the government, who, when about to sell it, were prevented by an injunction procured by the German manufacturers, the latter claiming the sole right to the name since they had procured a copyright on the word. The manufacturers have finally been upheld, and the purchasers are obliged to return the drug in their possession, and may only recover their loss through a special act of Congress.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Aug. 24, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 32, scarlatina 12, typhoid fever 34, measles 7, smallpox 0.

MORTALITY IN WORCESTER, MASS., FOR JULY. — The Board of Health of Worcester reports that the number of deaths for July, 1904, was 148, as against 199 for the corresponding month last year, being a decrease of 51, which the Board rightly regards as an excellent showing. In June, 1904, on the other hand, the deaths numbered three more than for June, 1903.

BEQUESTS. — By the will of the late Thomas D. Walsh, bequests of $1,000 each are made to St. Mary's Infant Asylum and five other institutions of semi-medical character in Boston and vicinity.

GIFT OF FIVE HUNDRED DOLLARS TO THE BOSTON FLOATING HOSPITAL. — The managers of the Boston Floating Hospital announce the receipt of five hundred dollars from anonymous persons to be applied to the fund for the construction of a new hospital boat.

OUTBREAK OF TYPHOID FEVER TRACED TO ITS SOURCE. — It is reported that a number of cases of typhoid fever, which have recently appeared in different parts of Boston, have been traced to contaminated spring water in connection with the construction of a sewer in an outlying part of the city. Direct infection appears to have been caused by the carelessness of one of the workmen on this sewer who had recently had a mild attack of typhoid fever. Immediate steps were taken to prevent the drinking of this water, and there is no probability that further cases will develop from this source.

NEW YORK.

APPOINTMENTS FOR STUDY OF PULMONARY DISEASE. — According to the *Journal of the American Medical Association* Dr. Darlington, health commissioner of New York, has selected a portion of the committee for the study of diseases of the lungs, for which recently $10,000 was appropriated. Among those appointed are Drs. Edward G. Janeway and T. Mitchell Prudden of New York, Drs. W. H. Welch and William Osler of Baltimore and Dr. Theobald Smith of Boston.

Miscellany.

THE WOUNDED IN THE NAVAL WAR BETWEEN JAPAN AND RUSSIA.

THE *British Medical Journal* in its issue of Aug. 13 published interesting notes from S. Suzuki, Deputy Inspector General of the Japanese Imperial Navy and Surgeon-in-Chief of the combined fleets, stationed on the "Mikasa," Admiral Togo's flagship, concerning the treatment of wounds on shipboard, of which the following are the conclusions:

(1) First aid dressings are very important if they are applied at all on the spots where men are injured, but nearly half or a little less of all the wounded are carried or come to the surgery without any dressing. The ambulance parties should be stationed at various parts of the ship. The practical and careful education

of ambulance parties is essential to future progress in the treatment of wounds.

(2) The first-aid packages used in navies of different countries are, it seems to me, folded too small, as the wounds inflicted by shell fragments are always larger than those made by small-calibre rifle bullets. These packages are intended chiefly for the army, where small size is essential for carrying purposes, but on board ship size does not matter much. In my experience 4-in. square sterile absorbent cotton wool with ¼-in. or a little more thickness covered with gauze and stitched in a few places around, is a convenient size. To this pad the middle part of a gauze bandage of 8 ft. in length and 4 in. wide should be stitched and kept aseptic as usual. With this we may dispense with the well-established triangular bandage.

(3) The modes of carrying the wounded must be various, as the size of ships varies as well as that of ladders and passages. As a rule, hand carrying is practised in small ships; in the battleships and first-class cruisers stretchers may be freely used if the surgeons impress on the bearers how to handle them quickly. We found a special stretcher made of bamboo and canvas, devised by Mr. Totsuka, of Sasebo Naval Hospital, very useful. No one form of stretchers, however ingeniously made, is suitable for all purposes on board ship.

(4) Choice of place for the surgeries. I believe it is generally accepted that a surgery on board war ships in action should be provided in more than one place. Even in cases where there is only one surgeon on board it is better to have two surgeries in different parts of the ship. It is desirable to choose a place below water line, but every ship does not allow surgeons to do this. I believe in the near future an ample provision for special surgery during action will be made by joint consultation of naval constructors and surgeons.

(5) Slight protection may save serious injury to the body. There are many examples to show that a pocket notebook, knife, etc., have saved men's lives from shell fragments. We have had a few examples in the present war. I dare say that in time every combatant on board war ships in action will wear some kind of protecting mask and jackets; a rifle-proof jacket was devised by the Germans some time ago. It is important to remember that in regard to the disposal of wounded men the non-firing side of a ship is more dangerous than the firing side, that is, the one exposed to the enemy, as the fragments of bursting shells are dispersed in a radiating manner.

(6) Strict observance of aseptic surgery is essential in military as in civil surgery, but the performance of serious operations on board war ships is incompatible with the good progress of cases; it is far better to transfer such cases as soon as possible to hospital ships. The surgeon-in-chief of fleets must take care to secure the fullest efficiency in the use of hospital ships, as non-combatant steamers are desired to be left as far as possible behind the actual seat of war.

SANATORIA FOR CONSUMPTIVES IN GERMANY.

The German Imperial Board of Health [1] gives the following statement: "At the beginning of 1904 there existed in the German Empire more than ninety 'Lung-Sanatoria' with, altogether, 8,000 beds. Of these 2,500 are exclusively for female patients. If we calculate on the average four patients for every bed, in one year, it follows that about 32,000 patients can enjoy the benefits of these sanatoria at the present time. The expense of building and furnishing the sanatoria amounted, up to the present time, according to a moderate estimate, to more than forty million marks (nearly ten million dollars). Beside the existing sanatoria the building of new ones is planned, some of which are in condition to be opened this year. As a basis for building expenses five thousand marks for every bed were calculated. Models and plans for sixty of these sanatoria were exhibited at St. Louis in the German exhibit."

[1] Catalogue of Exhibit at World's Fair, St. Louis, 1904, p. 45.

Correspondence.

AMERICAN MEDICAL SOCIETY FOR THE STUDY OF ALCOHOL AND OTHER NARCOTICS.

Hartford, Mass., Aug. 20, 1904.

Mr. Editor: The American Society for the Study of Alcohol and other Narcotics was organized June 8, 1904, by the union of the American Association for the Study of Inebriety and the Medical Temperance Association. Both of these societies are composed of physicians interested in the study and treatment of inebriety and the physiological nature and action of alcohol and narcotics in health and disease. The first society was organized in 1870 and has published five volumes of transactions and twenty-seven yearly volumes of the *Quarterly Journal of Inebriety*, the organ of its association. The second society began in 1891 and has issued three volumes of transactions, and for seven years published a quarterly bulletin containing the papers read at its meetings. The special object of the union of the two societies is to create greater interest among physicians to study one of the greatest evils of modern times. Its plan of work is to encourage and promote more exact scientific studies of the nature and effects of alcohol in health and disease, particularly of its etiological, physiological and therapeutic relations. Second, to secure more accurate investigations of the diseases associated with or following the use of alcohol and narcotics. Third, to correct the present empirical treatment of these diseases by secret drugs and so-called specifics, and to secure legislation, prohibiting the sale of nostrums claiming to be absolute cures containing dangerous poisons. Fourth, to encourage special legislation for the care, control and medical treatment of spirit and drug takers. The alcoholic problem and the diseases which center and spring from it are becoming more prominent, and its medical and hygienic importance have assumed such proportions that physicians everywhere are called on for advice and counsel. Public sentiment is turning to medical men for authoritative facts and conclusions to enable them to realize the causes, means of prevention and cure for this evil. This new society hopes to meet this want by enlisting medical men as members and stimulating new studies and researches from a broader and more scientific point of view. As a medical and hygienic topic the alcoholic problem has an intense personal interest, not only to every physician, but to the public generally in every town and city in the country. This interest demands concentrated efforts through the medium of a society to clear away the present confusion, educate public sentiment, and make medical men the final authority in the consideration of the remedial measures for cure and prevention. For this purpose a most urgent appeal is made to all physicians to assist in making this society the medium and authority for the scientific study of the subject. The secretary, Dr. T. D. Crothers of Hartford, Conn., will be pleased to give any further information.

Truly yours,

T. D. Crothers, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 13, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Diarrheal Diseases.
New York	3,908,844	1,418	621	40.83	6.13	1.62	1.27	23.90
Chicago	2,021,086	496	178	57.25	4.03	.20	1.60	32.37
Philadelphia	1,407,968	441	155	37.40	5.44	1.13	2.48	18.81
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	542,229	216	94	39.82	2.78	—	4.63	21.76
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	127	—	34.64	7.08	2.36	7.08	20.47
Cincinnati	338,277	—	—	—	—	—	—	—
Milwaukee	325,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	92	32	33.69	4.34	—	1.08	22.83
Boston	617,950	236	103	38.13	5.08	1.69	.84	27.96
Worcester	136,925	36	14	27.77	5.55	—	—	13.88
Fall River	119,349	44	29	59.07	—	—	2.27	49.98
Lowell	104,402	33	17	42.42	—	—	—	33.33
Cambridge	100,998	23	14	43.48	—	—	—	30.43
Lynn	73,878	15	5	26.66	—	—	—	26.66
Lawrence	72,348	32	—	21.87	9.37	—	3.12	18.75
Springfield	72,020	15	5	26.66	—	—	6.66	6.66
Somerville	70,413	11	6	18.18	—	—	—	9.09
New Bedford	68,868	37	21	37.82	2.70	—	—	27.02
Holyoke	50,338	18	11	55.55	5.55	5.55	—	33.33
Brockton	46,601	22	5	27.27	—	—	—	18.18
Newton	39,310	8	2	37.50	—	—	12.50	12.50
Haverhill	39,061	9	4	44.44	—	—	—	22.22
Malden	37,205	16	6	31.25	—	—	—	31.25
Salem	37,188	16	6	31.25	—	—	—	31.25
Chelsea	36,499	17	5	11.76	—	—	—	5.88
Fitchburg	36,335	12	9	8.33	—	—	—	—
Taunton	34,577	15	7	52.22	—	—	—	40.00
Everett	30,209	6	3	—	—	—	—	—
North Adams	29,201	4	2	25.00	—	—	—	—
Quincy	26,798	4	3	75.00	—	—	—	75.00
Gloucester	26,121	7	2	14.30	—	—	—	—
Waltham	25,797	5	—	20.00	—	—	—	—
Brookline	23,576	—	—	—	—	—	—	—
Pittsfield	22,870	—	—	—	—	—	—	—
Medford	21,956	6	4	16.67	—	—	—	16.67
Chicopee	21,692	14	7	42.85	—	—	—	35.71
Northampton	20,314	10	4	50.00	—	—	—	40.00
Beverly	15,807	4	1	—	—	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	5	2	—	—	—	—	—
Adams	14,745	7	4	85.80	—	—	—	57.20
Attleboro	14,561	1	1	100.00	—	—	—	100.00
Hyde Park	14,500	—	—	—	—	—	—	—
Newburyport	14,478	—	—	—	—	—	—	—
Woburn	14,315	7	2	28.60	14.30	—	—	14.30
Melrose	13,819	1	—	—	—	—	—	—
Westfield	13,809	1	1	—	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	5	1	20.00	20.00	—	—	20.00
Revere	13,609	7	5	—	—	—	—	—
Framingham	12,974	4	—	—	25.00	—	—	—
Peabody	12,406	—	—	—	—	—	—	—
Gardner	12,324	2	—	—	—	—	—	—
Southbridge	11,716	—	—	—	—	—	—	—
Watertown	11,575	3	2	66.67	—	—	—	33.33
Weymouth	11,350	8	4	37.50	—	—	—	37.50
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,516; under five years of age, 1,397; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,447; acute lung diseases 172, consumption 349, scarlet fever 8, whooping cough 17, cerebrospinal meningitis 29, smallpox 2, erysipelas 6, puerperal fever 9, measles 13, typhoid fever 63, diarrheal diseases 814, diphtheria and croup 37.

From whooping cough, New York 4, Chicago 4, Philadelphia 3, Pittsburg 3, Boston 1, Holyoke 1, Northampton 1. From measles, New York 8, Chicago 1, Philadelphia 1, Pittsburg 2, Lowell 1. From scarlet fever, New York 2, Chicago 3, Baltimore 3. From cerebrospinal meningitis, New York 24, Worcester 2, Cambridge 1, Chelsea 1, Adams 1. From erysipelas, New York 4, Philadelphia 1, Pittsburg 1. From smallpox, New York 1, North Adams 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending July 30, the death-rate was 16.4. Deaths reported 4,793; acute diseases of the respiratory organs (London) 48, whooping cough 57, diphtheria 35, measles 156, smallpox 5, scarlet fever 33.

The death-rate ranged from 2.6 in Smethwick, to 29.8 in Liverpool; London 16.0, West Ham 22.1, Brighton 14.9, Southampton 12.1, Plymouth 15.6, Bristol 11.7, Leicester 10.9, Nottingham 20.1, Bolton 13.4, Manchester 20.9, Salford 18.7, Bradford 18.3, Leeds 18.5, Hull 16.4, Sheffield 13.4, Cardiff 11.8, Rhondda 24.7, Wigan 21.6, Merthyr Tydfil 13.6, West Bromwich 14.7.

METEOROLOGICAL RECORD.

For the week ending August 13, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.		Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 7	29.90	76	84	69	65	56	60	W	W	8	6	C.	F.	0
M.. 8	30.01	70	76	63	88	65	76	S	W	16	16	R.	F.	.02
T.. 9	30.42	64	71	58	50	68	59	N	W	S	8	9	C.	C.	0
W. 10	30.29	62	66	59	70	97	84	S		E	4	5	O.	O.	.26
T.. 11	30.00	72	82	61	88	70	79	W		W	7	8	O.	C.	.17
F.. 12	30.23	63	66	60	89	89	89	N		E	12	4	O.	C.	0
S.. 13	30.14	63	70	56	86	59	72	E		S	3	9	C.G.	F.G.	T.
☞	30.15		74	61			74								.45

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Mean for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING AUGUST 20, 1904.

A. FARENHOLT, surgeon. Detached from the "Concord" and ordered to the "Monterey."

C. H. T. LOWNDES. Detached from the "Chesapeake" and ordered to the Naval Academy.

V. C. B. MEANS, surgeon. Detached from the "Montery" and ordered to the "San Francisco."

R. G. HEINER, assistant surgeon. Detached from the Naval Hospital, New York, N. Y., and ordered to the "Southery."

H. B. FITTS, surgeon. Detached from the "Pensacola," and granted leave for thirty days.

RECENT DEATHS.

ROBERT MILBANK, M.D., a well-known New York physician, died on August 4, at the age of fifty-six. Dr. Milbank had gone to Port Chester, on Long Island Sound, to visit a patient, his cousin, who was ill with typhoid fever, and while there, was attacked with cerebral apoplexy, which caused his death in a few hours. He was graduated from the medical department of the University of the City of New York in 1878, and afterwards served as interne in Bellevue Hospital.

ROMEO F. CHABERT, M.D., one of the most prominent physicians of Hudson County, N. J., died at his summer residence at Asbury Park, N. J., on August 1. He was born in London in 1828, and came to America when seven years of age. He had practised for forty-eight years in Hoboken, N. J., where he was the founder of St. Mary's Hospital. At the time of his death he was consulting physician to this institution, as well as to the Bayonne Hospital at Bergen Point, N. J. For many years he was also a member of the Board of Managers of the New Jersey State Hospital for the Insane at Morris Plains.

BOOKS AND PAMPHLETS RECEIVED.

Appleton's Medical Dictionary. An illustrated Dictionary of Medicine and Allied Subjects in which are given the Derivation, Accentuation, and Definition of Terms used throughout the Entire Field of Medical Science. Edited by Frank P. Foster, M.D. Illustrated. New York and London: D. Appleton & Co. 1904.

The Principles and Practice of Gynecology. For Students and Practitioners. By E. C. Dudley, A.M., M.D. Fourth Edition, Revised. Illustrated. Philadelphia and New York: Lee Brothers & Co. 1904.

Diseases of the Stomach and Their Surgical Treatment. By A. W. Mayo Robson, F.R.C.S., and B. G. A. Moynihan, M.S. Lond., F.R.C.S. Second Edition. Illustrated. New York: William Wood & Co. 1904.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and Other Topics of Interest to Students and Practitioners. By leading members of the Medical Profession throughout the World. Edited by A. O. J. Kelly, A.M., M.D. Vol. II. Fourteenth Series, 1904. Illustrated. Philadelphia: J. B. Lippincott Company. 1904.

Original Articles.

CLINICAL TOPOGRAPHY OF LYMPH NODES.

BY F. J. COTTON, M.D., BOSTON,
Assistant Surgeon, Boston City Hospital.

It is a matter of common recognition that most of the surgical affections of lymph glands are of infective origin and secondary to some local focus of infection. It is the writer's impression that we still pay too little attention to these sources of infection, and that we neglect such aid in locating the primary foci as may be obtained by applying our knowledge of the topography of lymph channels.

If we know and remember what region is drained by a given gland or gland chain we shall not only identify and properly treat local foci that might otherwise be overlooked, but may also obtain from the site and character of these foci much help in understanding the glandular conditions. In the case of neck glands in children, for instance, if we, aided by our anatomy, find one case to have an acute infection of the tonsil as the obvious primary cause, while another shows scalp irritation from pediculi, we shall be far less likely to class both cases as what used to be "scrofulous glands." Very often it is only by the aid of our anatomy that we can so identify the source of infection, only by considering this source in connection with the gland condition that we can properly weigh the diagnostic probabilities.

What we need may be called the practical anatomy of the lymphatics. Many of the details of lymphatic connections are so variable that they have hardly more than an academic interest; surgically, no one knows or cares much about them. On the other hand there is a correspondence of given drainage areas with certain larger lymph trunks, and of the latter with certain glands and gland chains, that is sufficiently constant to warrant our consideration.

This paper purports to present an outline of these anatomical facts, as described in the text-books,[1] checked and illustrated by brief notes of cases that have recently come under the writer's notice. Most of these case-notes are from cases seen within the past two months in the men's out-patient surgical department of the Boston City Hospital.

The gland groups will be considered regionally.

Head. Preauricular gland: A small gland, usually single, constant, the most superficial of the parotid group. It usually lies over the jaw-joint a finger's breadth in front of the ear, and receives afferents from the eyelids and orbit, from the root of the nose and from the forehead and the front part of the scalp. It is connected with the other lymph-nodes of the parotid region. It drains into the upper anterior portion of the deep cervical chain.

Case I. Furuncle over left eye. Left (and to less degree the right) preauricular lymph nodes enlarged. No other glands.

[1] Particularly well in Poirier and Charpy's Anatomy.

Case II. Burn of scalp (old and septic) on vertex to front and left. Left preauricular gland enlarged. No other glands except one or two behind angle of jaw — evidently at the top of the deep cervical chain.

Case III. Primary chancre of left lower eyelid. Several weeks' duration. Preauricular gland greatly enlarged; other parotid glands, and some anterior deep cervical glands somewhat swollen.

Case IV. Primary chancre of left upper eyelid. Has been under treatment. Left preauricular gland still large — also a couple of glands of the parotid group.

Case V. Tubercular suppurating neck glands — whole lymph system of left neck involved. Said to have been primary in submaxillary region. Preauricular gland now distinct though fluctuant — evidently involved by infection "against the current."

Case VI. Septic wound above outer edge of orbit. A small hard gland *above* the zygoma in front of the ear. No other glands. This case is of interest from the unusual position of the gland above, not below, the zygoma.

Parotid group of glands: Lymph glands are scattered on and in the parotid under the aponeurosis in some number. They share to some extent in the drainage area of the preauricular gland and also receive some afferents from part of the parietal scalp, from the external and middle ear, and perhaps from the back of the nasal fossæ. They drain into the upper end of the deep cervical chain.

Case VII. Boy of twelve. Shows an adherent node over the lower part of the right parotid. General glandular enlargement throughout the neck, especially the posterior glands and those of the supraclavicular chain. On the surface of the right sterno-cleidomastoid are two large glands. On the left are two suboccipital glands, one at the usual site, the other near an inch below it. Has a discharging chronic otitis on the right. Pediculi capitis (also large boggy tonsils).

Mastoid: Anatomically there are two or more glands. Clinically there is at least one situated constantly just behind the mastoid. It is the enlargement of this which, with the occipitals, is supposed to be so important a sign of syphilis. These glands drain the parietal scalp, and in part the ear and external auditory canal. The afferents run through and about the sternocleidomastoid into the upper end of the deep chain *at the back*.

Case VIII. Single gland behind mastoid with scar over it. Man of thirty-four. Old suppurative otitis in infancy.

Case IX. Fluctuant mass below and behind ear in boy of fourteen. Two months' duration. Was an abscess involving a gland in front of mastoid with enlargement of the upper glands of the deep cervical chain. Mild eczema of the scalp; seborrhea. No other cause found.

Case X. Young woman. Pediculi of scalp. Mastoids and suboccipitals on both sides swollen, especially a gland just on right mastoid process and behind it.

Suboccipital glands: One to three in number, on each side — one said to be always present — size small; situated under the aponeurosis just below the superior curved line at the edge of the trapezius on the complexus. Receive affer-

ents from the posterior portion of the scalp.[2] Efferents are divided between the upper posterior portion of the deep chain and the superficial posterior chain.

CASE XI. On the right side are two moderate-sized swollen glands at normal suboccipital site. Just above them an ulcer following the imperfect removal of a papilloma. Girl of eleven.

CASE XII. Ulcer of base of occiput (staphylococcia) in small child. Duration of one year. Suboccipital glands much enlarged.

CASE VII. Two suboccipital glands on left from pediculi (see above).

Facial glands: The facial glands are essentially inconstant. There appear at times

(*a*) Nasal and infraorbital glands.

(*b*) Buccal — on the external surface of the buccinator muscle.

(*c*) Supramaxillary. This group, like group (*b*), are likely to follow the line of the facial vessels. A gland of this group on or near the lower edge of the jaw is not infrequently palpable in normal individuals. All these facial glands drain to the submaxillary set.

CASE XIII. Syphilitic chancre of the upper lip on the left side; recent infection in young male of twenty-five. Enlarged glands at first only of the supramaxillary group along the facial vein: secondarily, the posterior glands of the submaxillary group became involved.

Submaxillary: There are three to six glands under the aponeurosis and platysma and external to the submaxillary salivary gland running from near the chin to the angle of the jaw. They receive drainage from

(*a*) The last mentioned group of glands.

(*b*) The external nose, cheek and upper lip (directly or through *a*).

(*c*) The gums and the fore part of the tongue.

The efferents run to the deep cervical chain — especially to a gland at the bifurcation of the carotids, but also to glands lower down.

CASE XIII. Woman of thirty. Chancre of right cheek; extreme swelling of submaxillary glands on the right.

CASE XIV. Man of thirty, malignant pustule (anthrax) of right cheek, two enlarged glands well back in the submaxillary set; no others.

CASE XV. Child of one. Swollen lymphatic gland, submaxillary, one only. Bad teeth and sore gums.

CASE XVI. Child of six. Alveolar abscess from right lower bicuspid, outer side. Distinct, tender lymph nodes on submaxillary salivary gland.

CASE XVII. Infected root cavity of bicuspid on left in girl of eighteen. Glands of left submaxillary set much enlarged. Removed under ether. Extend from angle of jaw forward. No other groups involved.

Submental and suprahyoid: These two groups are hardly separable. Between the digastries near the median line are one to four glands. They drain the chin, the outside of the lower lip and part of the mouth. Their efferents run to the submaxillary glands in part, but especially to a gland in the deep cervical chain at the level where the omohyoid crosses the carotid.

CASE XVIII. Man of twenty-five. Stomatitis, especially severe between lower lip and gums. All glands of suprahyoid and submental chain swollen. No others. Subsided under treatment.

CASE XIX. Boy of eleven. Impetigo of lower lip near left corner of mouth. No glands except one small submental, and one anterior suprahyoid on left.

CASE XX. Man of sixty. Advanced cancer of whole lower lip. All suprahyoid gland chain enlarged; also a few of the anterior upper deep cervical chain.

CASE XXI. Cancer of lower lip. One submental gland.

Lingual: On the hyoglossus and genio-glossus muscles are a few small glands to which the trunks of the posterior third of the tongue drain. From here the channels run to the upper glands of the deep cervical chain.

Internal maxillary: In the pterygo-maxillary space at the side of the pharynx lie glands receiving the drainage of part of the nasal fossæ and the roof of the mouth. They empty into the deep cervical chain direct or through the parotid nodes.

Retropharyngeal: One or two glands lie behind the pharynx on the rectus capitis anterior. They drain part of the nasal fossæ and nasopharynx and the Eustachian tube and empty into the glands of the deep cervical chain that lie *behind* the main vessels. These glands are the source of retropharyngeal abscesses.

Subhyoid: There are a few glands over the larynx and trochea, inconstant in distribution, including a group lying on or near the recurrent vessels. These last run down to the mediastinal glands, the others mainly out and down to reach the deep cervical chain low down.

In the neck proper there are three main groups of glands: the superficial, the supraclavicular and the deep group lying near the vessels. There are normally no glands on the nape (but see Case VII). The *superficial glands of the neck* lie in a general way *on* the sternocleidomastoid and more especially about the course of the external jugular vein; there is also a group of two or three along the anterior jugular vein. The superficial glands are especially found toward the upper region of the neck. Such is the book description, but as a matter of clinical fact, obvious superficial glands lie not only on, but perhaps even more often a little *behind* the sternocleidomastoid muscle, and are more often palpable in the middle of the neck than higher up.

These superficial glands drain in part the parotid region and the back part of the scalp. It seems clinically that more of the general posterior scalp area falls direct to their share than is drained through occipitals and mastoids. The efferent trunks run in part to the deep chain, in part to the supraclavicular glands.

The *supraclavicular* chain is likewise superficial and not definitely marked off from the last group. They lie in the supraclavicular triangle,

[2] Some part of the lateral and posterior surface of the scalp drains into trunks which run neither to mastoid nor occipital, but direct to the neck glands, both of the superficial and deep groups.

usually in a vertical chain, receiving drainage not only from the other superficial glands and trunks in the neck, but also efferents from the axillary glands. Their efferents in turn join with those of the deep chain to empty into the subclavian vein.

Superficial cervical:

Case XXII. Boy of six. Mass of acutely enlarged glands on the sternocleidomastoid close to the clavicle. On left, other superficial neck glands also enlarged. Many pediculi capitis.

Case XXIII. Man of twenty-four. Mass of glands on and behind the sternomastoid at middle of neck. Two or three glands above this and the whole supraclavicular chain moderately enlarged. Has many pediculi.

Case XXIV. Girl of ten. Irregular chain of glands superficial at back edge of sternomastoid on left. Few on right similarly placed. Many pediculi.

Case VII. General enlargement of neck glands. Two glands *on* sternomastoid (see above).

Case XXV. Colored male of twenty-five. Ulcerating tubercular glands of right side of neck. All chains involved but two gland masses are distinct *on* the sternomastoid just below the middle of the neck.

Case XXVI. Girl of eleven. Gland swellings (and cellulitis) all posterior to sternocleidomastoid in mid neck. Pediculi many. Subsided after killing pediculi after a little more than two weeks.

Case XXVII. Girl of nine. Glands all posterior to sternocleidomastoid; superficial abscess. Pediculi.

Case XXVIII. Boy of five. Suppurating gland at back edge of sternocleidomastoid, one month duration. Pediculi.

Case XXIX. Girl of fourteen. Glands under back part of sternocleidomastoid and in supraclavicular region — several months' duration. Pediculi many.

Case XXX. Boy of seventeen. Glands, unilateral, at back edge of sternocleidomastoid, suppurating for two weeks. Pediculi many.

Case XXXI. Girl of twenty. Like case, three months' duration. Glands of anterior deep chain also involved. Pediculi many.

Case XXXII. Girl of six. Glands at back edge sternocleidomastoid. Many pediculi. Cured by cleaning and poultice.

Deep chain of neck: These comprise the largest main chain of the neck and the most glands. They lie under the sternomastoid in a rather irregular plexus of freely anastomosing nodes extending from mastoid process to subclavian vein and backward to the supraclavicular triangle. There are from fifteen to thirty in all, mostly in the upper half of the neck and usually few or none below the omohyoid. They may be divided roughly into external and internal: The external group anastomoses with the supraclavicular and receives drainage mainly from the back of the neck and head. They are relatively small glands. The internal group lies on and about the internal jugular vein; it is composed of larger glands. There is one of especial size (palpable in any thin neck) at the level of the hyoid cornua, another rather large one just above the point where the omohyoid crosses the vessels. More or less glands — hardly a chain — lie internal to and beneath the vessels. As to the details of drainage — the trunks from the occiput and nape and the efferents from the posterior glands reach the external chain; those of tongue and nose and throat empty into glands of the internal set mainly at the level of the large gland opposite the hyoid or at a higher level. This chain also receives the drainage of the face and the efferents of the submaxillaries at about the same level.

The efferents join with those of the more superficial glands to empty with the thoracic duct on the left, to a trunk on the right that reaches the subclavian vein direct.

Case XXXIII. Boy of ten. Elastic swelling of the large gland below digastric, right and left. Other glands of deep chain very little enlarged. Tonsilitis two weeks ago.

Case XXXIV. Girl of eleven. Glands below digastric right and left greatly swollen; few other glands. Has subacute catarrhal tonsilitis.

Case XXXV. Girl of twenty. Carotid glands, right and left, swollen several weeks and growing. No other glands. Follicular pharyngitis. No other source.

Deep chain, general anterior enlargement:

Case XXXVI. Boy of seventeen. Acute, swollen glands on left, only. Deep cervical chain only. Whole mass involved, anterior perhaps more. Large, boggy tonsils — pharyngitis.

Case XXXVII. Child of one year. Deep cervical glands all large, especially anteriorly — one side only subacute. Obvious infection of gums around bad teeth on this side.

Several cases of advanced or operated generalized tubercular glands are not here noted.

Lower glands of deep chain:

Case XXXVIII. Man of fifty. Tonsilitis, follicular. On right side whole deep chain swelled, this subsided and there then developed a deep gland mass in the lower anterior chain within an inch and a half of the clavicle. Deep abscess; operation.

Lymphatics of the arm: There are typically no nodes below the elbow, but not infrequently there are said to be atypical glands, as in the following case:

Case XXXIX. Man of forty. Sepsis from slight wound on dorsum of second finger. There was a red line of lymphangeitis, running from the wrist through the bend of the elbow to the axilla. On this line four inches above the wrist on the dorsal side, externally, was a lymph-node the size of a pea; subcutaneous, movable, tender. The epitrochlear gland was not involved. In the axilla were three or four small tender glands of the pectoral or median chain, only.

Epitrochlear gland: This is the lowest lymph node in the arm usually. It lies superficially 3 to 4 cm. above the internal epicondyle on the fascia. There may be two, rarely three, glands in place of one. The general position of this gland is familiar from the examination for suspected syphilis; it is often missed, however, not always by students alone, on account of variation in position. Not infrequently it is much higher than we expect, rarely lower, almost always on or just in front of the edge of the intermuscular septum which is palpable in this region.

The tributary region the trunks of which pass to the epitrochlear includes the ulnar surface

of the forearm in its lower half and two or three fingers, with the ulnar border of the hand. This area is not constant, of course, in detail, and some of the cases which follow show both more and less than the usual areas transmitting infection to this gland.

CASE XL. Furuncles of the hand scattered on ulnar and radial side. Epitrochlear gland moderately enlarged. Lymphangeitis in a red line up from furuncle on radial side of wrist toward the axilla. Axillary glands much enlarged.

CASE XLI. Man of thirty. Superficial wound of little finger — slight sepsis. Secondary furuncle on ulnar side of wrist. Epitrochlear gland much swollen. One gland in axilla in middle (not humeral) chain.

CASE XLII. Man of twenty-five. Septic man-bite of knuckle of third finger. Epitrochlear enlarged. Soreness also in axilla, nothing palpable.

CASE XLIII. Man of twenty-five. Superficial skin sepsis of little finger. Line of red lymphangeitis to the greatly enlarged epitrochlear gland. Nothing in the axilla.

CASE XLIV. Man of twenty-four. Septic wound of the ulnar side of the wrist with cellulitis and ascending lymphangeitis. Slight enlargement of epitrochlear. Axillary glands swollen.

CASE XLV. Girl of eight. Wound of ulnar side of forearm half way up. Greatly enlarged and tender epitrochlear gland. Axilla negative.

CASE XLVI. Superficial sepsis of the dorsum of hand on *radial* side — red lymphangeitis around back of ulnar side, thence to a swollen epitrochlear gland. No axillary gland enlargement.

CASE XLVII. Male adult. Superficial sepsis of *index* finger. Vague red lines up the forearm. Epitrochlear gland greatly swollen and tender. Axilla negative.

Deep glands exist along the brachial vessels — few and inconstant. The delto-pectoral glands are present in 14% of cases (Grossman, quoted by Poirier). There are but one or two small glands lying at the shoulder in the groove between deltoid and pectoral. The writer has never seen any of these recognizably enlarged.

Axillary glands: The glands of the axilla lie under the aponeurosis, mainly well up in the axilla. They are usually classified in five groups.

The *humeral*, four or five in number, lying along the vessels on the inner side of and often on the vein. These are supposed to drain nearly all the arm.

The *thoracic* divided into an *upper* group, two or three at the second and third intercostal spaces under the pectoralis major, draining chest and breast, and a *lower* group at the fourth and fifth space lying along the external mammary artery. These drain the wall of the thorax and upper abdomen.

The *subscapular* group are a few nodes which lie about the dorsalis scapulæ and receive drainage largely from the lower part of the nape and the scapular region and the upper back. There is a set sometimes described as the intermediate chain, not a chain properly, but a set of glands interrupting the general anastomosis of the other groups.

The *subclavian* glands are a short chain of six to twelve glands between the axillary vein and the serratus magnus muscle and above the upper edge of the pectoralis minor. They receive little or no primary drainage but receive the efferents of nearly all the other glands of the axillary group. They anastomose also with the glands of the neck. Their efferent vessels empty into the subclavian near the external jugular.

See also Cases XXXIX, XL, XLI.

CASE XLVIII. Male of twenty. Sepsis of second finger, lymphangeitis red up through bend of elbow along inner biceps edge to inner axilla. Glands of pectoral group *only* are palpable.

CASE XLIX. Male of thirty-five. Burn of radial side of dorsum of hand. No epitrochlear. Axillary glands enlarged; median and humeral groups.

CASE L. Burn three inches above the wrist on ulnar surface. Epitrochlear not enlarged but glands in axilla swollen.

CASE LI. Incised wound of second finger on palmar side, lymphangeitis up the arm through bend of elbow along inner side of biceps. Glands in axilla on thoracic side *only* — two high up.

CASE LII. Late cancer of breast. Massive metastases in lower pectoral chain, but upper glands also found infected at operation.

CASE LIII. Drained septic empyema wound in mid-axillary line — ninth rib excision — glands in axilla of pectoral (lower) and intermediate chains.

Glands of leg: The lowest glands in the leg are the inconstant *anterior tibial* group, lying deep in on the upper part of the course of the anterior tibial vessels. The *popliteal* glands are the lowest constant ones. Even these are only exceptionally to be found enlarged. They are subaponeurotic, small and rather deep, and the relative frequency of bursal enlargements in this region renders a differential diagnosis not always easy.

There is usually a gland lying relatively near the surface, near the external saphenous vein, receiving drainage from the outer side of foot and ankle. The next deeper set receives the efferents from the anterior tibial ganglion and those accompanying the vessels, and the deepest glands drain the joint and its surroundings. The writer has not seen these deeper glands enlarged, the superficial one only twice. As a rule, superficial leg infections seem to give rise to inguinal enlargements, the lower glands being skipped.

Inguinal glands: The glands ordinarily referred to as inguinal are the superficial sets, including the horizontal chain along Poupart's ligament and the shorter vertical set in Scarpa's triangle. They lie in the deep layer of the superficial fascia along most of the length of Poupart's ligament, and down in front of the femoral vessels for about three inches. Beyond the division into horizontal and vertical groups there is no sharp division of groups.

The *vertical* inguinal or femoral chain drain the superficial tissues of the leg in the main. In the *horizontal* group the upper and inner glands drain the scrotum and the surface of the penis (except near the meatus) and receive some of the lymphatics from the perineum and anal region and usually those from the pubes and abdomen below

the umbilicus. The outer glands drain the buttocks and part of the perianal region. The glands of the superficial group drain in the main to the intrapelvic glands (external iliac, etc.) by way of the crural ring. They anastomose also with the deep inguinal glands.

Inguinal and femoral:

Case LIV. Male of forty. Slight sepsis over tibia. Inguinal glands swollen, vertical group *only* — none of horizontal chain.

Case LV. Varicose ulcer over lower tibia. Two large glands of saphenous chain. No swelling of horizontal glands.

Case LVI. Horse kick on front of thigh one week ago — slight local sepsis. Enlarged oblong gland (1) at femoral ring. Slight swelling of three or four of horizontal set.

Case LVII. Male of forty. Enlarged glands, right, especially of saphenous chain but also of horizontal. History of recent strain lifting. Careful examination shows no local primary lesions.

Case LVIII. Enlarged gland (1) of saphenous chain. Two small glands internal to this over pectineus and well below Poupart's ligament. Careful examination shows no primary lesion. History of bubo fifteen years ago.

Case LIX. Enlargement (acute) of scattered inguinal glands all just below Poupart's, belonging to the lower middle part of the horizontal chain. Primary focus a furuncle near anus on left.

Case LX. Furuncle on buttocks a hand's breadth from anus. Red lymphangeitis around buttock to outer upper glands of horizontal chain.

Case LXI. Eczema from pediculosis pubes. Enlarged glands both sides — of horizontal chain mainly at the inner end.

Case LXII. Scabies mainly limited to base of penis and pubes. Suppurating glands on both sides at inner end of horizontal chain. Other glands moderately swollen.

Case LXIII. Small scrotal epithelioma on the left side, of some years' duration. Hard gland masses of lower inner horizontal inguinal chain on left only; they belong to the superficial glands. Question of adhesions and involvement of deep femoral chain.

Case LXIV. Woman of thirty-five. Small septic abrasion on the front of the ankle. Suppurating bubo of the vertical femoral chain in the groin. Horizontal set not involved.

As to bubo infection from the penis and scrotum, the writer has not kept accurate notes of glands involved. Most of them seem dependent on ulcers of prepuce or just behind corona, and the upper inner superficial glands are those involved.

As to glands from urethral involvement, the writer has watched for years a series, certainly including twelve hundred cases of gonorrhea, and has seen gonorrheal bubo (except where there was local external cause, *e. g.*, associated ulcers or balanitis) in not over three or four cases. The ordinarily reputed "bubo from gonorrhea" is a myth, as much against clinical as anatomical evidence.

The *deep inguinal glands* lie under the crural group under the fascia. They are only two or three in number, small, and rarely to be identified clinically. Where a bubo involves the crural group and is adherent to the deep parts, we may be justified in inferring that this group is also affected. One of the glands (Cloquet's gland) lies in the femoral canal and derives clinical importance from this fact as its enlargement is said to cause pain and circulatory disturbances. These deep glands drain the deeper tissues of the leg, receiving also vessels from the glans penis and from part of the superficial inguinal glands, the efferents of which pass mainly by this route to the iliac chain.

The lymphatics within the pelvic and abdominal cavity are of little diagnostic importance; the anatomy may be dismissed with the statement that the lymph channels and glands follow the general course of the veins toward the receptaculum chyli. For clinical purposes it is important to remember that the external iliac group receive the efferents of the superficial inguinal group, as well as some direct drainage, urethra and glans for example. These efferent trunks reach the pelvis in part through the crural, in part through the inguinal ring. This is the only direct drainage; all lymphatics from the leg reach other glands before they reach the pelvis; the scrotum and perineum and all of the superficial surface of the penis except the glans drain to the inguinal glands of the superficial set; the testis drains with the cord through the inguinal canal direct to the lumbar glands of the lateral series, corresponding to the fetal position of the testis.

Case LXV. Malignant disease of scrotum — glands of superficial inguinal chain enlarged.

Case LXVI. Male twenty-four. Carcinoma of left testis. Glandular mass in abdomen to the left in the region of the left kidney. There is no discoverable enlargement of other glands than this lumbar set.

The urethra in common with the meatus drains direct to the glands of the iliac sets. This explains the clinical fact that adenitis from gonorrhea, uncomplicated with balanitis or sores, is a rarity, despite the usual clinical teaching. The writer has never yet seen a case of *suppurating* adenitis from urethral infection. Nor has he found the simple gland enlargement present in more than a trifling per cent of urethritis cases.

It is to be remembered that there is in the inguinal series a free cross-anastomosis from side to side taking place in front of the pubis.

Case LXVII. Man of twenty-five. Small, partly healed chancroid on left side of prepuce. Glands swollen in both groins but predominantly *on the right*.

No effort has been made to include in this paper the anatomy of such glands as are out of reach of surgical palpation, for only these palpable ones have any diagnostic value. The writer feels convinced of the practical value of a knowledge of such gland chains as are within reach of examination. It is not claimed either that the correspondence of glands with drainage areas is exact, or that ascertaining the anatomic source of infection will necessarily determine the character of the process. Of course, it cannot do this, but it can help. The writer is very sure

that a more exact attention to and some familiarity with the grouping of glands and their drainage areas will set us right in regard to:

(*a*) Many so-called " scrofulous " neck-glands in children which show up first in the posterior deep and superficial glands. Sometimes they are tuberculous; in nearly all cases, however, they are septic; in all cases they are traceable to primary scalp irritation, usually from pediculi. Remove the pediculi, make small incisions for the pus, and the great majority will get well promptly without the enucleation now so frequently carried out for these as well as the really tuberculous cases.

(*b*) Buboes of unknown origin, non-venereal, lying low in the groin, due to a septic focus on the foot or leg, which is often overlooked by patient and physician.

(*c*) True inguinal buboes, associated with a gonorrhea, but almost never due to it, but secondary to some septic process under the prepuce which should be but rarely is found.

Of the service of anatomical knowledge of neck and groin glands there is no doubt; elsewhere such knowledge is less obviously useful, but we are unlikely to grow too familiar with it.

This paper contains nothing new in theory or fact, and the cases appended are simply illustrative, but the writer hopes that the practical anatomy under consideration may be refreshed for others in the reading as it has been for him during the observation of this list of cases.

SURGERY ON OLD MEN.

BY WM. H. ARTHUR, M.D.,
Major and Surgeon, U. S. Army, Washington, D. C.

THE hospital of the United States Soldiers' Home offers unusual opportunity for observing the effect of old age, with its accompanying disabilities, in reducing the chances of recovery from serious surgical operations, involving prolonged anesthesia; and, during my service here of about ten months, I have been a good deal impressed with the fact that old men are much better subjects than, I believe, is generally supposed.

The inmates of this Soldiers' Home are divided into three classes:

(1) Honorably discharged soldiers of the regular army of over twenty years' service.

(2) Men discharged on surgeon's certificate of disability, at any age, or after any length of service.

(3) Any man who has served in the regular army, and who has, subsequently to his discharge, become so far disabled as to be unable to earn his living.

Some of the inmates are veterans of the Mexican war; many of them were mature men at the outbreak of the Civil war, and most of the younger men are the débris of the Spanish war and the military operations in the Philippines. This clientele does not seem to offer a very promising field for surgery. Many of these men suffer from chronic alcoholism, general arterio-sclerosis very far advanced, chronic nephritis, cystitis, tabes, diabetes, syphilis or inoperable visceral cancer. Heart diseases (including neuroses, valvular defects and degenerations of the heart muscle) and chronic pulmonary tuberculosis, extensive emphysema and chronic bronchitis are very common. Indeed, it is the exception to find a man over sixty in the hospital entirely free from one or other of these diseases, and still many of them present indications for operation, almost mandatory, if what is left of their lives is not to be intolerable.

Out of 65 operations I have performed here of sufficient severity to require general anesthesia, 22 were done on patients averaging 70.4 years of age (the youngest being sixty-two, the oldest eighty-five) and, as it is these cases only that present anything of interest in this connection, the others will not be considered.

My experience having been for twenty-three years among an entirely different class of cases, soldiers on active duty, healthy, vigorous, picked men, in the prime of life, it was with considerable misgiving that I began operating upon the old, broken-down men who are treated in this hospital. It was very necessary, in the beginning, in order to secure and retain the confidence of these men (who have very little to occupy their minds, talk much among themselves about their ailments, and, I imagine, watch and criticise their doctors very closely), that the first cases should recover promptly, or my surgical usefulness at this hospital would be lost. I was fortunate in finding here an excellent first assistant and a very skillful and experienced anesthetist, with a record of 586 administrations at this hospital, without a death traceable to the anesthetic. There is also a surgical nurse who has had long experience in the preparation of instruments, suture-materials and dressings, and a very well-equipped operating room, clean, fairly well lighted and of good size. The governing board of the Soldiers' Home is wisely liberal in providing anything asked for that can be of any use in caring for the sick. The hospital accommodates 120 patients and will soon be enlarged so as to take in 70 more. The medical side of the hospital is the most important part of the establishment, but does not concern us at present.

The operations in the 22 cases under consideration comprised:

OPERATION		RECOVERED	DIED
Amputations,	4	3	1
Hernia, inguinal,	8	8	0
Hemorrhoids,	3	3	0
Exploratory laparotomy,	2	2	0
Ventral hernia,	1	1	0
Lithotomy (suprapubic),	1	1	0
Trephining and removal of depressed bone of skull,	1	1	0
Varicose veins,	1	1	0
Nephrectomy,	1	1	0

These were performed in the following order:

NO.	NAME	AGE	OPERATION
1	Sherborne,	72	Amputation, middle right forearm.
2	Tetzner,	68	Extensive internal and external hemorrhoids, clamp and cautery.
3	Kinsella,	67	Exploratory laparotomy, general plastic peritonitis, cause unknown.
4	Wilson,	66	Suprapubic cystotomy for stone.
5	White,	65	Left inguinal hernia.

NO.	NAME	AGE	OPERATION
6	Schmidt,	75	Cystic degeneration left kidney, nephrectomy.
7	Schaeffer,	74	Enormous scrotal hernia, left inguinal, partly reducible.
8	Mosher,	69	Amputation, thigh, two inches below trochanters, senile gangrene.
9	Roensch,	64	Amputation, middle finger right hand, Dupuytren's contraction.
10	Hoffman,	84	Hernia, right large scrotal with hydrocele.
11	Hough,	69	Extensive external and internal hemorrhoids.
12	White,	65	Right inguinal hernia.
13	Schantz,	69	Ventral hernia.
14	Nadin,	65	Inguinal hernia, right.
15	Cunningham,	71	Inguinal hernia, left.
16	Weissker,	70	Varicose veins, both legs. (12 resections in all.)
17	Scantling,	78	Trephining and removal of depressed bone of skull.
18	Clark,	62	Left inguinal hernia.
19	Schantz,	69	Exploratory laparotomy for acute intestinal obstruction, appendix removed, obstruction relieved.
20	Clark,	62	Right inguinal hernia and bunion right foot.
21	Blum,	74	Amputation, middle left leg, senile gangrene.
22	Kernan,	85	Extensive internal and external hemorrhoids.

REMARKS, MAY 23, 1904.

No. 1. This man has symptoms of cancer of stomach, inoperable.

No. 2. This patient is a hemiplegic, apparently much older than age given.

No. 3. Some improvement followed operation.

No. 4. A very feeble man with weak heart, apparently much older than age given. Has symptoms of malignant disease of stomach.

No. 6. An unusually vigorous man for his age.

No. 7. Uninterrupted recovery, union *per primam*.

No. 8. Died on fifth day after operation, no circulation in flaps, obliterating endarteritis of all arterial trunks.

No. 10. Union *per primam*, recovery uneventful.

No. 11. Clamp and cautery.

No. 14. This man suffers from chronic pulmonary tuberculosis.

No. 17. Old depressed fracture of thirty years' standing, symptoms (incessant headache and frequent vomiting) relieved.

No. 19. Obstruction caused by appendix adherent at tip, gut slipping under it.

No. 20. Bunion cured by resection of proximal end of first phalanx of great toe.

No. 22. Clamp and cautery.

Many cases of enlarged prostate have come under observation, but there were only two in which operation was indicated, and these occurred in men slowly dying, one from chronic pulmonary tuberculosis, and the other from cancer of the pancreas, and as they could be kept comfortable by frequent catheterization, the prostatectomy was not performed.

The one case among the twenty-two that ended fatally (this man died on the fifth day after operation) was a case of amputation two inches below trochanters for senile gangrene of lower extremity. There was no oozing from the flaps, the femoral arteries were obliterated, no attempt at union resulted and the stump became gangrenous. This man had three years before lost the other lower extremity (amputated at about the same point) for the same cause. He was sixty-nine years of age and in general poor condition. The operation was done at the patient's earnest solicitation, to relieve intolerable suffering in the extremity.

The hernias were all varieties of inguinal, incomplete, complete, direct, indirect, and in two cases (7 and 10) enormous scrotal, only partly reducible. In all these cases plaited silk was used for the deep line of sutures, as in many of them the tissues were not very strong and a permanent suture material was necessary. I see no reason so far to regret using this material, and have since used it here in a number of cases among younger men not reported in this paper.

The anesthetic used in all these cases was chloroform, until the patient had passed the stage of excitement, followed by ether throughout the operation. In cases unusually debilitated a careful watch was kept on the blood pressure with a sphygmomanometer. In one case only (14) was it necessary to hasten the operation on account of threatened collapse of the patient. In this case an attempt had been made by some one, years before, to cure the hernia by injecting the sac with some irritant. This had resulted in producing tough adhesions of the contents to the wall of the sac, and the patient becoming very weak during the attempt to completely free these adhesions, which would have taken a long time, the separation was only partially completed, the sac was only partly removed, stitched up rapidly instead of being ligated, and returned. The patient made a good recovery from the operation, is still living after four months, and has had no symptoms referable to the hernia, which has shown no tendency so far to recur. In another case (12) (bilateral hernia) the patient's condition during the first operation was so poor, that operation on the other side was deferred until later. Both sides have now been closed. Case 7 presented an enormous scrotal hernia (eight inches long, five inches diameter) in a very fat subject, seventy-four years of age. The hernia was partly reducible, and the sac was found to contain about eighteen feet of small intestine, with a mesentery loaded with fat and no omentum. The internal ring had to be enlarged upward before this mass could be reduced. Six months later this patient had some symptoms of obstruction, but they passed away without necessitating laparotomy. The hernia after eight months has not returned, and the patient is now in good general health. Case 6 was of interest. The patient was seventy-five years of age. He presented a large, elastic tumor in the upper left abdominal quadrant. Laparotomy (incision in left semilunar line) disclosed a large cyst containing about 600 cc. of clear fluid. The case was treated like an ovarian cyst (partly emptied through canula and then brought out through incision) and proved to be a cystic degeneration of the left kidney, very little kidney tissue remaining; the entire mass was removed. This man, who was an unusually vigorous man for his age, made an uninterrupted recovery, and is now engaged as "range rider" at Fort Riley, Kan.,

making daily a trip over that large reservation, either on horseback or in a buckboard. He writes that he is entirely well. One case (12) developed a circumscribed apical pneumonia three days after operation, but his recovery from the operation was not materially delayed, the pneumonia remaining circumscribed, and clearing up rapidly after a typical crisis.

The only conclusion to be drawn from these cases is that we need not hesitate to operate even on very old men; that their chances are rather better than is generally supposed, and that in view of the record of the anesthetist at this hospital, who has been administering the anesthetics for fourteen years without a death (586 cases in all), it would appear that general anesthesia is not so dangerous for old people as we are led to believe.

The other forty-three operations being all among men below sixty years of age, are of little interest in this connection, except that their recovery without infection in any case shows that the technic followed here secures very fair results, and I believe that among old subjects with limited resistance, great care to secure asepsis is pre-eminently necessary, for I am sure that, once infected, the tissues of debilitated subjects would offer little resistance, and their destruction would be very rapid and extensive.

In every operation in this hospital, the operator, the first and second assistants and the assistant in charge of the instruments have worn rubber gloves, to which precaution I give the principal credit for the fact that no evidences of infection have been seen in any of the cases operated upon here.

It is not of course safe to draw general conclusions from such a limited number of cases, twenty-two, but the anesthetic record of this hospital (586 cases without a death), when we consider that 30% at least, and more, probably 40%, of these cases were men above sixty years of age, seems to me worth reporting. Spinal anesthesia was used in one case here before my arrival, but the results in that case were so alarming, and general anesthesia has been so apparently free from danger, that it has not been repeated.

Since writing this paper a case has come under observation here that is of interest in this connection.

John Saunders, late Co. F, 19th Infantry, aged eighty-nine, admitted to the Home, April 20, 1904, and immediately sent to hospital suffering from senile gangrene of both feet. This patient was in poor condition, weak and anemic. He suffered from occasional anginoid attacks, not very severe. Heart sounds very distant and feeble, pulse rapid but regular. Radial pulse imperceptible as the result of sclerosed condition of radial arteries. Both feet about equally affected, all toes becoming gangrenous, no posterior tibial pulsation. Popliteal pulse fairly good. This man suffered excruciating pain in the feet and legs. Anodynes had little or no effect, morphia hypodermically administered up to 1.5 grams in 24 hours did not afford relief, the patient seeming to have an idiosyncrasy for this drug, being apparently unaffected by it.

On his earnest solicitation on June 18, both legs were amputated simultaneously, at junction of middle and upper third, the house surgeon removing one and I the other, by circular operation. This man made a good recovery, is still living, August 26, and has complete relief from his suffering, which was very severe before operation. Union was by first intention in both stumps.

MENTAL DEFECTIVES.

BY BERTHA C. DOWNING, M.D., LEXINGTON, MASS.,

Past Supt. of School Department of New Jersey Training School for Feeble-Minded.

IN July, 1848, Dr. H. B. Wilbur, a young physician who had been practising medicine in the village of Barre, Mass., opened a private school for idiots. Without knowledge of the experience of others to guide him, he had to study out his own methods and systems. His success in the work is so well known it needs no mention. This was the first school for idiots that was established in America.

Dr. S. G. Howe, Superintendent of the Perkins Institute for the Blind, opened a similar school for mental defectives, at South Boston, in October of the same year, known as the Massachusetts Institution for idiots. Dr. Howe's largest interest, however, lay in educating the blind, and the institution for idiots was not much heard of until it was moved to Waverley, where to-day it stands, with Dr. Fernald as its superintendent, with about 700 inmates and a waiting-list of 1300, Massachusetts having to-day in round numbers 5000 mental defectives of school age and less than 1000 cared for. On good authority, in the United States there are 100,000 of these defectives under twenty-one years, and less than ten per cent in any way looked after. There are twenty so-called " schools " supported or partly supported by states, where a conglomerate mass of defectives may be found, in most cases so badly classified that the name "school" is a misnomer; and in but one or two is the individual studied and developed according to its needs, as is done with remarkable results by Bourneville in France. England, or, rather, London, has special classes in connection with schools where much is done for the feeble-minded, 10% of the London school children are mental defectives. In Boston, the estimate is 1,000 such in our public schools; some put the number as high as 3,000. How many of our incorrigible girls and boys that we may find in houses of refuge, where they are half educated in letters and wholly unreached in morals, are sent into the community, later, the moral imbeciles they were in the beginning, only more powerfully armed for mischief? How many of our insane are really feeble-minded, wayward or neglected in their early training and at last conveniently housed in hospitals, after having wrought mischief, entered social relations, reproduced their kind, antagonized experts and lawyers, puzzled philanthropists, and in every possible way retaliated on their progenitors for their origin and on the community for their mis-

apprehension! And pauperism breeding other paupers, — what is it but imbecility let free to do its mischief? The brighter class of the feeble-minded with their weak will-power and deficient judgment are easily influenced for evil, and are prone to become vagrants, drunkards and thieves; how comes such a state of affairs?

The developing of mental defectives was conceived by a physician-educator who said, "Concerning the treatment of the feeble-minded, I would suggest that the experienced educator be called in, rather than the physician. The developing of the mind and the disciplining of the individual is more the province of the teacher than the physician."

Comparatively few physicians are educators; yet the work has fallen into the hands of the physician. In most of the institutions the school department is a secondary consideration; the *per capita* cost is a large factor, as to whether this or that institution is well run, — not what can we do for this individual child, regardless of cost.

The word "idiot" is misleading to the public at large, our latest medical authority classifying the idiot as a special form of insanity. Is it so? An insane brain, as I understand it, is a diseased brain, — not necessarily that of the idiot so-called. The words "feeble-minded" and "imbecility" are used to denote the idiot. Lately, "mental defectives" seems to be the favorite term. The public think of an idiot as a repulsive being to look at; "feeble-minded" and "imbecility" convey little idea to them, I find. Among the mental defectives, especially the high grades — who are by all means the most dangerous — may be found many attractive forms and faces, with real talent along certain lines. Did you ever hear of Blind Tom? He was feeble-minded in everything but memory, but he could hear the most complex music ever played and play it afterwards quite well; one could repeat the Lord's Prayer in Greek, and Blind Tom would repeat it right back and never know a word. At the New Jersey school, I knew a boy who had made a perfect model of a ship. You will be surprised at the results of many of these persons, if you comprehend what mind they have. Politics and a field for the physicians is a large factor in not allowing the work for mental defectives to be what it ought.

A word as to the causes of mental defect. Three thousand entrance blanks which I have gone over show tuberculosis to be the chief factor in the generation of idiocy. I find that the late Dr. Isaac N. Kerlin, in an essay on the "Classification and Causation of Idiocy," gives the histories of one hundred families, in each of which there was a case of idiocy. A careful examination of his tables shows that 145 members of these families, including parents, sisters, brothers and grandparents, were afflicted with pulmonary consumption. Statistics of the Royal Albert and Dareuth Asylums for mental defectives show that among the hereditary causes of 2,380 cases, consumption ranks the highest,— a percentage of 28.31, while insanity, epilepsy, intemperance, have a percentage of 16.47, 8.69 and 16.38, respectively. Dr. Langdon Down, physician to the Earleswood Asylum for Idiots, in his "Mental Affections of Childhood and Youth," says, "It appears to me that tuberculosis must be accepted as one important cause of idiocy; that it impresses special character thereon, while imparting a strong family likeness to the subjects of this class. It is no less clear to me that idiocy of a non-tubercular origin leads to tuberculosis. Whether this arises through the influences of the pneumogastric nerve, malassimilation of food, or defective innervation, it cannot be but regarded that the connection between these two troubles is by no means accidental, and that a due appreciation of this relation is necessary to those who would deal effectively with congenital mental lesions."

In a paper by Dr. Thomas J. Mays on pulmonary consumption in its relation to idiocy and imbecility, he says, "Any one who has made himself familiar with the history of feeble-minded children must have had his attention drawn to the prominent part which pulmonary consumption plays in the development of the diseases with which they are afflicted. Indeed, when one remembers that its influence in this respect is more conspicuous than that of insanity, epilepsy, or any of the other neuroses, one is forced to admit its exceeding intimate affiliation with the nervous system." "My own conviction, which grows with increasing experiences, is that consumption not only has a strong indirect relation to diseases which affect the nervous system, but is itself the result of a depreciated condition of the nervous system, and hence belongs to the family of disorders called the neuroses."

No one is surprised to find that insanity and epilepsy create a special liability to idiocy in the offspring, but it is certainly startling, especially in the light of its supposed bacillary origin, that consumption is more powerful in this respect than any other cause which is known to give rise to this trouble.

Exanthematous diseases furnish a rather high percentage in our tables of causation for feeble-mindedness.

A common condition with them is what used to be classed under that somewhat indefinite term, "scrofulous." The glands will become swollen very easily from comparatively slight irritative causes; they are subject to inflammatory eye diseases. Diseases, such as eczema, which is supposed to be non-contagious, will spread rapidly through a group of feeble-minded children. I know of two institutions where separate rooms had to be prepared and such cases isolated. They are very susceptible to cold, and will stand a high degree of heat, and, as I have shown, they readily fall victims of the bacillus of tuberculosis. Exanthematous diseases are generally more severe in their effect than in normal children. In an epidemic of measles, which took place in a large number of middle and lower grades of imbecility of which I had charge

in the wards some years ago, I was struck by the large percentage which developed complicating pneumonia and meningitis, as a rule fatal. Epilepsy very frequently complicates imbecility, sometimes preceding the development of mental weakness, more often occurring as an after-complication.

Deformities, sometimes due to paralytic contraction, sometimes not, are common. Various forms of cerebral paralysis (spastic palsies), accompanied often by choreiform and athetoid movements, are common among mental defectives, such cases falling into the large class constituting the paralytic type. Hearing is abnormally acute; they do not seem to see well, but training soon corrects this. The surgeon can do but little for the imbecile. The specialist finds a large field among this class. The removal of abnormal growths, as adenoids, the furnishing well fitted glasses, the orthopedic surgeon, may do much. Lack of muscular control calls for suitable muscular training. The military drill has met with excellent success. Speech-training is a very important factor in the development, calling for a specialist with a knowledge of laryngology, and also a well-trained elocutionist. Dr. Hudson McCuen, of the Polyclinic, at Philadelphia, has proven this with astonishing results, in a school I was connected with. Dr. A. W. Wilmarth, now superintendent of the Wisconsin Home for Feeble-minded, has probably made more post-mortem examinations on idiots than any other doctor in the United States, and has found that many cases of uneven mental development, where certain faculties seemed unusually developed, were due to small localized attacks of meningeal inflammation.

How is the idiot to be recognized? Judge Ashman of Philadelphia, in a paper on "A Medico-Legal Study of Idiocy," gives the best description of an idiot that I have seen. He says, "Hence an idiot [he uses this word to mean mental defect of all grades] while for all purposes of self-care may be absolutely impotent, may be taught to read and write. While the germs of all the human faculties are present, they operate on a minute scale, and when a careful training has educated them to the utmost, we still find that the balancing force is wanting, and that the idiot is hopelessly deficient in self-knowledge."

It is said, on good authority, that idiocy can be recognized in a new-born child by the lack of closing its hand firmly about any object laid in it. I have known this to prove true in thirty cases. Lack of co-ordination of the muscles, a peculiar gait apt to be like that of an old person, defective speech, lack of concentration, absence of the inquisitive sense, between the age of five and eight, a dull expression, lack of reasoning-power, speech may be wanting. Fernald says, "It is safe to assume that the child of six years without deafness or defect of the vocal organs who cannot talk is actually feeble-minded."

The diagnosis in the higher grades is not always quickly or easily made, while his capacity for self-care is greater, his capacity for public harm and his chance of danger and suffering is also greater.

The medical profession at large should be more fully convinced of the utility of education for these children. Such conclusion would save to comparative usefulness many helpless and hopeless lives. At present, even in families of means, imbecile infants are commonly allowed to grow to adult life in utter moral and mental neglect; and in many a case is the medical adviser responsible. The deaf-mute and the blind child enjoy increasing hospital and educational advantages; why not the mentally defective, peculiarly nervous and backward? Surely, with such results as are obtained by M. Bourneville, it is proven that more ought to be done for our feeble-minded.

I borrow from Dr. Eley's work, in which he has described at length the work of M. Bourneville in his medico-pedagogical institute at Vitry (Seine): Here are 250 children of the upper classes. The school embodies great comfort, healthfulness and convenience; it aims at the physical, intellectual and professional training of defective children; the methods have been borrowed everywhere from all schools, classical and special. He seeks "that which is"; "that which underlies in these children"; he will utilize his resources, however small, to train up most perfectly all the latent faculties he may find. The first principle is that the pupil is to be occupied continuously during waking hours with physical, hygienic and intellectual exercises, as many as will prevent idleness yet fall short of fatigue.

Through the influence of M. Bourneville, a special department numbering eight hundred was established at B——, where the same methods as at Vitry are carried out. At these schools a beginning is made with the education of sight and smell; walking and the muscular sense come next; then the larger object of awakening the attention and developing the instinct of preservation, the absence of which two signs makes a marked clinical symptom of idiocy. In the pedagogical work, the exercises are mutual and collective. The individual attention is appealed to, also the imitative faculty. Physical training — fencing, dancing, military exercises, gymnastics — is carefully adapted to each pupil's needs.

The surgeon finds his field in correcting deformities, and the physician administers his drugs for the ailments all children are heirs to. The proper medical work in these schools should simply follow the modern lines of specialization, and that physician called in who best knows how to reach the given defect or disease.

The best institution for the feeble-minded is not the one where the *per capita* cost is the least. That appeals to legislatures, because they do not understand the needs; and how can they, when affairs are as we find them in our legislatures to-day? Let public charity and state aid combine and give us schools for these least of God's

little ones, and thus aid greatly to stamp out crime, immorality, poverty, disease.

A few superintendents of our public schools are awakening to the fact that they have a duty to these peculiar children; that they need special training. Providence (R. I.), Philadelphia, Boston, and possibly one or two other cities, are slowly weeding their mentally defective children from those of normal minds, sending the unteachable ones to the state institutions to be cared for, and establishing schoolrooms for the teachable ones with small classes. Let them multiply. It is a step in the right direction. With time the types will be classified and home schools founded. Then progress will be made. One public school superintendent said to me, "This work calls for money, and where is it to come from?" The parents, state aid and public charity have a duty here.

The only justification for the expenditure of public money is the public good. That is, the good of the whole mass of the people. Any other theory of the expenditure of public money leads not only to extravagance and corruption, but necessarily to the confiscation of property. The assistance which we render to our fellow-man is charity. The assistance which the state renders is humanitarian; it is based solely on the good of society. It is the object of government to promote general welfare. We create and provide boards of health and make regulations to guard against disease. We quarantine a contagious disease, that the healthy may not suffer from contact; we have laws regulating employer and employed, governing workshops and factories, in order that the safety and well-being of our operatives be promoted; and upon the same principle which prompts the state to throw these safeguards around its citizens, it should protect them against the mental defectives. No state can afford to neglect a strict censorship over all classes which are mentally defective and are therefore likely to do harm. We live in an age of close contact, we all touch elbows, we are a part of a great social organism, and if one of us is ailing or defective, that whole organism is thrown out of joint.

There is not, to my mind, a more important problem before the public to-day than this of its mental defectives. Our dependent classes, through no fault of their own, infect the community in which they live, and infect society down along the generations to come; and society, whose duty it is to protect the general welfare, cannot neglect its obligation in this direction. I am of the opinion that every child (because the prevention of dependency must begin by treating the dependent in youth) should be examined by a competent commission, under state supervision, and if found to be mentally defective should at once become a ward of the state for proper training and care. This, surely, is more humane and merciful than to permit this child to suffer unnecessarily himself and to cause suffering to his fellows.

The feeble-minded which we have we must keep with us until they die, but they need not be allowed to bring other feeble-minded into the world. The fact that feeble-mindedness often is inherited supplies a solid foundation upon which to base restrictive and preventive measure.

OPERATIONS ON THE STOMACH, WITH REPORT OF CASES.

BY JOHN C. MUNRO, M.D., BOSTON,
From the Surgical Clinic, Carney Hospital, Boston, Mass.

(Concluded from No. 8, p. 216.)

No. LXXXV. Female, twenty-eight years old, referred by Dr. McGrath of Beverly, entered the Carney Hospital in December, 1903.

Two years ago she had complained of gas in the stomach and intestines, with distention relieved by eructation. These attacks came on irregularly and apparently had no reference to the food taken. At times there was nausea, but without vomiting or blood. There were pain and soreness in the epigastrium and she was badly constipated. Examination showed poorly digested food, a dilated and prolapsed stomach, with hydrochloric acid present.

At operation, by Dr. Bottomley, a sagging, dilated stomach was found, with normal pylorus. The mesocolon was adherent to the posterior wall. A gastro-enterostomy, with clamps and sutures, was made and the wound closed.

Patient was discharged in about three weeks, in good condition.

No. LXXXVIII. Female, thirty-five years old, referred by Dr. Dewis. She had had a pelvic operation of some sort six years before. Stomach trouble began about two years ago and was marked by the inability to eat any but the simplest form of food. After eating she complained of a lump in the epigastrium with pain lasting several hours. These attacks would be severe if she attempted to eat a hearty meal. There had never been vomiting. She complained much of eructation of gas one or two hours after eating. She had not lost weight. There was no history of blood in the stools. She was always constipated and had suffered from asthma for a number of years. During the attacks of gastric trouble she would shut off all food except a very small quantity of simple liquid, until she grew weak from starvation, when she would return to ordinary diet. Then at the end of two weeks or so the cycle would be repeated. Examination showed a sagging stomach, with the upper border a little above the umbilicus. Examination of the stomach contents showed complete achylia with prolapse and dilatation.

At operation, at the Carney Hospital, in May, 1904, there was found adherent to the lower abdominal scar a stretched-out prolongation of the omentum dragging the stomach downwards. This adhesion was ligated and cut. The stomach was found U-shaped and prolapsed; the lesser curvature lying one inch above the umbilicus; the pylorus, as well as the remainder of the stomach, appearing normal. The right lobe of the liver was prolapsed, with its edges nearly at the level of the umbilicus, the diaphragm being flattened and resting on the dome. A posterior gastro-enterostomy, with clamps and sutures, was done, the gastrohepatic omentum shortened, lifting the edge of the stomach nearly to its normal position. The slack round ligament of the liver was sutured to the under surface of the diaphragm, supporting the liver. Abdominal wound closed in layers.

No. LXVIII. Female, fifty-eight years old, transferred from the medical side of the Carney Hospital April, 1904.

She had had stomach trouble off and on for seven years, vomiting blood, without pain, the attacks coming on about every year. Three weeks before entrance she was troubled with gas, especially after eating, and distress. She had lost twenty-five pounds in the last year. She had been twice in an asylum with some mental trouble. In the epigastrium there was some tenderness on deep pressure. She had limited herself to the most simple diet for a number of years.

At operation the pylorus showed old scar tissue on the anterior wall and towards the duodenum. The opening was much narrowed and without induration. The patient was very fat and instead of doing a gastro-duodenostomy it seemed safer to do a posterior gastro-enterostomy in the usual way, with clamps and sutures. The wound was closed in layers. The patient did only fairly well after the operation, persisting in vomiting small amounts whenever attempts were made to feed her as the usual gastro-enterostomy patients are fed. So three weeks after the first operation the abdomen was reopened and the anastomotic opening was found free, easily admitting three fingers, but at the left angle there was a small point of adhesions between the stomach and the distal loop, close to the sutured edge, pulling the gut a little forward and making a slight kink, but apparently not sufficient to close the lumen even to a slight extent. The proximal loop was not edematous nor swollen. There was no sign of its being obstructed. Measurement showed that the distance from the edge of the suture to the jejunal origin was six inches, and as the gut lay in position there was no sign of loop or kink. The distal loop was negative. Palpation of the retroperitoneal portion of the duodenum showed no evidence of obstruction. The opening in the stomach was at the lowest level. The lumen of the pylorus was still narrow. Nothing elsewhere was found to account for the persistence in vomiting other than the small kink at the distal edge. However, entero-enterostomy was made, with clamps and sutures, and the wound closed. She made a good recovery, and in a short time was discharged in good condition, without having vomited, and gaining steadily and rapidly in every way.

No. LXXXIX. Male, fifty-five years old, was seen with Dr. Deacon of Milltown, N. B., in May, 1904.

Twenty years ago he had a severe attack of so-called inflammation of the bowels, since which time he had had a delicate stomach and had suffered much from dyspepsia. In the winter of 1902–03 he was ill for a long period. Cancer of the stomach was suspected from the symptoms. Hydrochloric acid was found present, and under careful treatment the patient improved and was fairly well during the summer. Relapse followed during the past winter, and an operation was advised. He had rarely vomited and only once or twice had there been any excessive amount. The abdomen had been tender in one spot in the pyloric region. He complained more of distention and gas than anything else, and at times, especially at night, the pain from this gas would be so severe that he was obliged to rest on his hands and knees. He had been very careful of his diet for years, and when the pain returned he would fast until he starved. He had lost weight and for years had been badly constipated.

At operation, at the Chipman Memorial Hospital, N. B., a moderately dilated stomach was found, while at the pylorus and adherent to the posterior abdominal wall was a tumor the size of a large horse-chestnut, extending along the duodenum for over an inch and a half, so that it did not seem practicable to attempt a pylorectomy. No lymph nodes were felt in the omentum or retroperitoneal space. A posterior gastro-enterostomy was made, with clamps and sutures, and the wound closed in layers. Towards the close of the operation he vomited some blood, and during operation the stomach showed some digested blood within its cavity.

A few weeks later the patient was in good condition and convalescing satisfactorily.

No. XCII. Male, fifty-five years old, referred by Dr. Wilder of Medfield.

For several years patient had had dyspepsia, with much gas and eructation, coming on in spells, lasting a month or more, with intervals when he would be free for a long period. The eructations came specially after drinking water. He had never vomited, but if he attempted to eat a full meal he would have pain, nausea and marked increase in gas formation. He had never vomited blood nor noticed black stools. He was very constipated and had lately had several attacks of typical mild appendicitis. Distress from the food would come quickly, with a feeling of fullness in the epigastrium, not always relieved by eructation, and even if expulsion of the gas did relieve the acute pain there would be a dull persistent ache. Recently he had lost a good deal of weight and had pain and soreness in the right hypochondrium.

Examination showed well-marked tenderness over the appendix, dilated stomach, with poorly digested food, hydrochloric acid, and slight tenderness over the pyloric region.

At operation, at the Carney Hospital, the stomach was found dilated, with a pylorus nearly closed, probably from an old ulcer, although that could not be established. There were no signs of malignant growth in any region. The gall bladder contained a calculus the size of a buckshot, but otherwise appeared healthy. A posterior gastro-enterostomy, with clamps and sutures, was made; with a short jejunal loop, and the abdominal wound closed. Through a second incision the appendix, which was obliterated through three quarters of its length, was removed. As there seemed to be no indications of trouble from the gall bladder it was left alone.

No. XCIII. Female, twenty-three years old, had had stomach trouble two years ago, lasting six months, pain coming on about one hour after eating and relieved by vomiting. Gastric pain not severe when the stomach was empty. She vomited blood once or twice in this attack. Eight weeks ago there was a similar, less severe attack. Four weeks ago there was epigastric pain again with vomiting, and three weeks ago she vomited fresh blood. As in the early attacks, the pain was relieved by vomiting.

At operation in May, at the Carney Hospital, a dilated, prolapsed stomach was found, the lesser curve being two inches above the umbilicus. Pylorus was slightly thickened and nodular at the upper anterior portion, but the lumen was patent. Enlarged lymph nodes were felt along the greater curvature. There were some adhesions found in the duodenum extending from the region of the bile ducts, but the gall bladder appeared normal. The duodenum was freed and a gastroduodenostomy (Finney) was done. Examination of the inner surface of the pylorus showed a small pin-head ulceration with some surrounding induration. Elsewhere the abdomen was negative. Abdominal wound closed in layers.

No. XCIV. Male, twenty-nine years old, referred by Dr. Deacon, of N. B. Six years bfeore I saw him in May, 1904; he had had indigestion with much vomiting lasting for six months. Eighteen months later he had a second attack lasting for ten

days, characterized by epigastric cramps and vomiting but without blood, or retained food. The vomiting persisted more or less up to a year ago. Never had been much gas from the first. In February, 1903, he vomited a little blood and was ill for four months. There was much vomiting three to four hours after his midday meal, consisting for the most part of bile. Since then he had had no severe attack, but considerable epigastric pain, gas and more or less vomiting and he had lost weight.

Examination showed the capacity to be two pints, some residue nearly digested after five hours, and the lesser border one inch above umbilicus.

He had derived no benefit from medical treatment at various places.

At operation at the Carney Hospital a dilated, prolapsed stomach, with the lesser curvature one inch above the umbilicus, was found. The liver was prolapsed to the level of the umbilicus. The gall bladder was found adherent to the deep portion of the duodenum, with a broad sheet of adhesions holding it against the posterior abdominal wall. The pylorus felt indurated and nodular as from a cicatrix, but the lumen was not much contracted. Enlarged lymph nodes were felt on the greater curvature. A gastroduodenostomy (Finney) was made. At one area on the mucous lining of the pylorus there was free bleeding whenever touched by the sponge. This area lay on the thickened portion of the pyloric ring, but there was no definite ulceration. The gall bladder, which was otherwise normal, after being freed, was sutured to the edge of the liver and the round ligament was sutured to the anterior wall to prevent further prolapse. Abdominal wound closed in layers. Discharged in good condition.

No. LXXXVII. Female, fifty-nine years old, referred by Dr. Dewis.

Ovariotomy seven years before I saw her. For four years she had had stomach trouble with temporary relief at intervals. For a year there had been burning in epigastrium and loss of weight. At the beginning of her dyspepsia for a space of six months all food except liquids caused distress.

Examination showed absence of hydrochloric acid, retained undigested food after eighteen hours, dilatation and prolapse.

At operation at the Carney Hospital in May, 1904, a moderately dilated stomach with the border two inches above the umbilicus was found. The omentum was firmly adherent by broad bands to the scar of the former operation, apparently tending to pull the stomach downwards. Pyloric opening normal. A gastroduodenostomy (Finney) was made. Examination of mucous membrane failed to show any ulcers. Gall bladder region normal. The omental adhesions were so extensive and deep that it seemed wiser not to attempt to disturb them. Abdominal wound closed in layers. Discharged in good condition.

No. XCV. Female, thirty years old, referred from the medical side, Carney Hospital, in June, 1904.

Before Feb. 12, 1904, at the time of her injury the patient had never been ill a day. On that date she was crushed and trodden upon in a crowd and was unconscious for three days. The day following injury she vomited bright blood and passed blood in her stool. For two months she was confined to bed and kept on very limited diet, vomiting blood nearly every other day besides passing blood several times in her stools.

Since April she had had many hemorrhages, coming on after pain in the lower lumbar region. When lying on her right side she complained of pain in the epigastrium.

While in the hospital she vomited coffee grounds and mucus, the vomiting containing free hydrochloric acid.

In addition to her abdominal injury she had various other injuries on the head, lower extremity, etc. There was also a marked element of neurosis present.

At operation the stomach was of about normal size and without visible evidences of ulcer. The pylorus felt normal and nothing abnormal in the duodenum or elsewhere could be found.

A posterior gastro-enterostomy, with clamps and sutures, was made, digested blood being found in the stomach. Abdomen closed in layers. Patient in hospital at time of report.

In conclusion, I should like once more to emphasize the fact that these cases have been collected and written up with only one or two main objects in view, namely, to present their clinical histories as they can easily be obtained by the general practitioner, and to illustrate, so far as can be done briefly, the gross pathological conditions as seen at operation. The paper has been written for this society, a large majority of the members of which are general practitioners, or at least not operating surgeons. To include the data that would appeal to the surgeon as well, would involve a much longer and a more tedious paper. Later, when the number of cases is larger, when the end results are better known, and after longer trial with the different operations, a more complete and satisfactory analysis can be made and the indications and contradictions with regard to surgical treatment can be more clearly demonstrated in the various types of lesions.

When we stop to consider that the cases reported in this paper represent those seen in one clinic, and referred by a small number of consultants, at a time when both the profession and the laity appeal to surgery as a last resort, we are justified in hazarding the belief that there must be a very large number of people in this part of the country who should at least be allowed to have surgical advice with regard to their symptoms of gastric and intestinal disorder.

But, as we have said before, how much surgery can do, and for what types of gastric and duodenal lesions it is the best treatment, time alone will tell.

Discussion.

Operations on the Stomach.

Dr. E. P. Joslin of Boston: The accompanying chart shows the results of operations upon benignant disease of the stomach at the Boston City Hospital and Massachusetts General Hospital, Jan. 1, 1898, to Jan. 1, 1904. It is taken from a paper now in course of publication by Dr. F. B. Lund and Dr. F. T. Murphy and myself. At a meeting of the Surgical Section of the Suffolk District of the Massachusetts Medical Society, held last winter, the question of operation upon benignant gastric diseases was discussed, and at its conclusion the suggestion was made that the results of these operations at the two large hospitals be combined and published. The writers are indebted to the chairman of the Surgical Section, Dr. F. B. Harrington, and the secretary, Dr. E. A. Codman, who arranged the meeting, for permission to use the Massachusetts

General Hospital statistics, and to the surgical staff of the Boston City Hospital for consent to record their cases. The writers further wish to express their appreciation of the kindness of Dr. Arthur T. Cabot, who read the manuscript before it was sent to the printer.

The reason for the publication of this chart at the present time is the firm conviction of the writers that gastric surgery is making such rapid progress in Boston that it is unfair to embarrass future statistics with those of the six pioneer years in this branch of surgery. Moreover, not long ago the medical aspect of ulcer of the stomach at one of these hospitals was critically studied by a physician and surgeon, and it seemed fitting that the surgical side of the question should be as impartially treated. The above paper showed that the immediate success attending medical treatment of ulcer of the stomach in Boston was far below that usually given in the literature. Fifty-five per cent of the patients were discharged well from the hospital in contradistinction to Leube's seventy-four per cent cured. The ultimate results were still worse and demonstrated that fifty-six per cent of the ulcer patients were either dead or had had stomach trouble referable to the ulcer since their discharge from the hospital. It is with *patients similar to this fifty-six per cent of medically unsuccessful cases that this paper deals.* While the results are not as favorable as have been elsewhere reported, they represent the facts. Furthermore they show the condition of the patient some time after the operation and not the immediate result alone.

The conclusions of the paper are as follows:

1. Results of operations in benignant disease of the stomach at the Boston City Hospital and the Massachusetts General Hospital.

JANUARY 1, 1898, TO JANUARY 1, 1904.

	Number of Cases	Deaths	Well	Re-lieved	Not Re-lieved	Secondary Operations
Hemorrhage,	10	10	0			1
Perforation,	18	13	5			2
Chronic Ulcers,	21	5	7	4	5	8
Pyloric Obstruction,	21	5	9	3	4	2
Acute Dilatation,	1	1	0			
Total,	71	34	21	7	9	13

2. Surgical intervention in gastric hemorrhage should be considered even before it is urgent, and the surgeon should jointly with the physician watch the course of the patient. Cases of gastric hemorrhage entering the accident room should be seen, as a rule, by a physician as well as a surgeon.

Operations upon females under thirty years of age should be most conservatively advised, since death under medical treatment is rare. This generalization, however, should not unduly influence consultants in a case of repeated hemorrhages threatening life, even in a patient below this age.

3. Mortality in operations for perforation of the stomach is chiefly dependent upon the length of time intervening between perforation and operation and the virulence of infection. To lessen the mortality house officers should report suspected cases simultaneously to the physician and surgeon on duty, or their substitutes, and should obtain permission for a possible operation from the patient or friends.

4. Patients with chronic ulcers of the stomach or strictures of the pylorus should be jointly watched by the physician and surgeon. The surgeon should know the patient before being compelled to operate. Postponement of operation after it is indicated is dangerous, owing to the possibility of hemorrhage, perforation and exhaustion.

5. Errors in surgical technic occurred, which in subsequent operations will presumably be avoided. Methods of operation were chosen, which in the light of the exeprience of to-day would be considered unsuitable. Together, these classes of cases account for about half of the deaths.

6. The seventy-one cases were operated upon by twenty-five different surgeons — an average of one case to each surgeon in twenty-five months. It is reasonable to conclude that the mortality would have been less if each surgeon had had more experience.

DR. F. B. LUND of Boston stated that it was a privilege to hear such a paper as that Dr. Munro had read, upon a subject of so much importance in the medical and surgical world. It seemed to him that, in this field, the greatest and most important advances in surgery at present are being made. Our knowledge of diseases of the stomach, and our ability to help, by surgical means, patients hitherto incurable, are rapidly advancing.

In regard to the table, of which Dr. Munro had spoken, he agreed with him that this table gave a very false impression of the mortality from diseases of the stomach. These operations were the early cases of a large number of men who were acquiring their experience in this class of surgery. With the knowledge of the pathology and surgical technic which the experience of these cases has brought, a greatly diminished mortality is to be expected in the future. It is easy, in reading the history of these cases, to detect errors in the interpretation of conditions, and in the technic of operations performed.

It has been pretty generally conceded by a large number of operators of experience, that the posterior gastro-enterostomy, as performed by Moynihan, and Finney's operation of pyloroplasty, are the methods which give the greatest relief with the lowest mortality in these cases.

The question of choice of methods to be used in individual cases is a broad one. The speaker's experience, and his study of the cases entering into this table, have led him to the general conclusion that, in cases where the pylorus is completely occluded by scar tissue, and is likely, therefore, to remain occluded, posterior gastro-enterostomy is the operation of choice. In cases where the obstruction of the pylorus is due to spasm from the presence of chronic ulcer, perhaps at some distance from the pylorus, cases in which, with a gastro-enterostomy, the pylorus would be likely to expand, allowing the gastro-enterostomy to contract, until a condition of things results from which the stomach gets proper drainage neither way, Finney's operation is perhaps indicated. However, the question of the best operation for various conditions is still *sub judice*. The question of the excision of the pyloric or ulcer-bearing area of the stomach, for ulcer of the stomach, is one that is interesting the surgical world to-day.

Dr. Lund then spoke of three cases of subacute perforation of the stomach. These occasions were signalized by epigastric pain, tenderness and spasm, soon subsiding, and not going on to general peritonitis, thus in contradistinction of perforation into the general peritoneal cavity. In these cases posterior gastro-enterostomy has been done without separating the adhesions which walled off the perforating ulcer or peritoneal cavity. By this procedure one avoids the difficult process of infolding a thickened and inflamed area of the stomach wall. Infection is avoided. The freest kind of drainage is provided, and the after history of these cases demonstrated that the ulcers healed rapidly under the internal drainage provided by the gastro-enterostomy, and the adhesions under the same conditions did not do any harm.

This technic, in the speaker's opinion, for every reason should be greatly preferred to the separation of the adhesions, thus opening up the ulcer, and infolding by suture of the perforations.

Dr. H. F. Hewes, of Boston: There can be no doubt that, in the advance in gastric surgery, medicine has become possessed of a new and very practical therapeutic measure for use in a very common branch of disorders, the diseases of the stomach. I am perfectly aware when I say this that the results in regard to gastric surgery are not yet all in. Most of our reports upon the subject are from surgeons who are apt to think more of the immediate result of the operation than of the ultimate result. Also time has not yet elapsed sufficient to test the mass of gastro-enterostomies which have been reported in preliminary records. Enough however has been proven to convince the medical mind that in gastric surgery we have a useful and fairly safe therapeutic method with a great future.

When and where to use this method is of course always a matter of judgment for the individual cases, but that it has a use, and that such possible use must be borne in mind by the physician in the consideration of each and every one of his cases of stomach disorder, is a fact which to-day admits of no doubt. When we consider the actual use of this new therapeutic method up to the present, we cannot but conclude, I think, in reviewing the field of fact and opinion, that the tendency is, for the physician, where the judgment rests with him, to use it too little or too late, for the surgeon under the same circumstances to use it too often and too soon. This of course is meant as a very general statement. There are many men in both ranks who are at one on the subject. This variation between the two branches is due, in fact, I think, to the difference in the experience of the two. The physician sees many more stomach cases than the surgeon — the mild and severe — and a great majority, 90% or so, get well under medical care. He looks upon a laparotomy as a dangerous operation, and rightly to a certain extent, and he prefers to take the chance of his case being among the 90%, unless the evidence is very strong against it.

The surgeon, on the other hand, sees as a rule only the serious cases, the 10% of uncured cases; he has not quite the same fear of a major operation as the physician, and he is for operation in a given case of doubtful character according to this experience. As a matter of fact, however, the fault with both physician and surgeon lies principally not in the difference of training or experience, but in an insufficient consideration in regard to diagnosis in the routine of cases which come to them.

If a full appreciation of the possibilities of diagnosis by the use of thorough methods, and a habit of applying these methods in all cases existed generally, a considerable number of cases which are now kept too long under medical care would come to the surgeon at an earlier date, and many cases with no indication for operation, save a doubt as to diagnosis due to ignorance of conditions present, would be spared unnecessary operation.

There is at some hands a tendency to decry expert diagnosis in stomach conditions, owing to the fact that the old rules promulgated before all facts were in, in regard to the association of absence of HCl, with carcinoma, have proved not to be infallible. The facts of the chemistry of the gastric contents make but a small part of the results of expert examination, and in connection with surgery, as a rule, a secondary part of very secondary importance. The facts which have the most bearing upon surgery of the stomach are those in connection with the motility of the organ, its size and the condition of its orifices. And these facts can always be determined by applying proper methods of diagnosis, and they should always be determined in every stomach case, however mild or however severe its type.

The findings may not always affect the question of operation in a given case, but they will frequently do so, and at all events we are in a better position in regard to treatment, medical or surgical, the more facts we have in. The number of cases treated medically in ignorance of the real conditions present would alone serve as an excuse for impressing this fact upon the physician, without the additional argument offered by the cases of carcinoma or ulcer which come too late to surgery. And the number of cases which I have myself seen operated upon without previous thorough investigation, where operation showed no condition present for which operation was indicated, serve as an excuse for impressing it upon the surgeon.

Dr. C. L. Scudder of Boston: It is a principle with which we all agree, that any surgical procedure must be done with precision and with speed and be adapted to the case in hand, in order that it may prove efficient. There is no procedure in surgery which demands such accuracy of technic as does the operation of gastro-enterostomy. Faulty technic may mean death of the patient.

I have been very much interested in the various operations upon the stomach which have been developing during the past few years. I have been interested in these operations from a physiological as well as from a purely surgical point of view. In a recent visit to the clinics of several surgeons in England and upon the Continent, for the purpose of learning the technic in use there in gastric surgery, I was very much impressed by the simplicity of most methods, but especially by the fact that, save in one clinic, the routine procedure in gastro-enterostomy is the posterior operation. As my contribution to this discussion of Dr. Munro's extremely interesting paper, I will describe and illustrate by means of lantern slides the various steps in the technic of a posterior gastro-enterostomy.

Dr. Scudder showed some lantern slides illustrating the various steps in the operation of a posterior gastro-jejunostomy, emphasizing the important details as the slides were shown.

Medical Progress.

REPORT ON OBSTETRICS.

BY FRANK A. HIGGINS, M.D., BOSTON.

TO PROMOTE LACTATION.

Zlocisti [1] argues that the infant after birth is as much dependent on the maternal organism for nutrition as during its fetal existence. It needs the milk as it needed the placental circulation before. He has applied to women the experience of stock raisers in regard to the value of cotton seed as a milk-producing substance for milch cows. The pulverized cotton seeds were given to nursing women when the milk seemed to be diminishing in quantity or quality, and the way the infants thrived on the milk produced in abundance afterward testified to the lactagogue efficacy of the "lactagol," as the powder is called. He urges the collection of statistics,

[1] Jour. Am. Med. Assn., Mar. 12, 1904, p. 744: Berl. klin. Woch., xli, No. 5.

showing the proportion of bottle-fed infants who have tuberculosis or cancer later, suggesting that the lack of breast nursing may prepare the soil for these diseases.

CICATRICES OF BREAST AND LACTATION.

In two[2] cases described, the breast had been the site of extensive burns previously. Lactation, however, proceeded normally in one patient, although the cicatricial areola was hard and inflexible, requiring softening and massage before the babe could nurse properly. The other patient did not nurse her infant, and as the milk was secreted, the breast became very painful. Under appropriate measures, lactation was suppressed as under normal conditions, without inflammation or gangrene of the burned breast.

The results in the first case correspond with the experience of the reporter, that even when the breasts are the site of old cicatrices, a child of a subsequent pregnancy may be nursed if the breasts are carefully attended to and given frequent massage to relax the adhesions.

PREGNANCY DURING LACTATION.

Church[3] says that the evil results of the overlapping of these two conditions are not generally known. He believes that were an inquiry made into the conditions arising from it, it would probably be found (1) that the suckling was or became a delicate child, that he at one or other stage of his development suffered from some affection of the nervous system, and that he was the mentally weak one of the family; (2) that during lactation the embryo was prematurely expelled from the uterus, or if it reached full time, that it, in many cases, did so with lowered vitality, and handicapped in some way or other for the race of life; and (3) that the mother's health was generally undermined for a longer or a shorter time. Seldom would it appear that the mother had blood and strength enough for the welfare of the trio.

INJURIES TO THE CHILD'S HEAD DURING DELIVERY.

Jardine[4] found that depressions of the skull caused by labor occurred in contracted pelves, and are caused by pressure of the promontory, but that they may also occur in normal pelves. Fracture may occur during delivery, and yet there may be no depression evident on a casual examination. Other serious injuries may occur, such as cortical or meningeal hemorrhage, traumatic keratitis, hemorrhage into the optic nerve, or anterior chamber of the eye. Subconjunctival hemorrhages are exceedingly common, even in normal labors, but they are of no consequence. If cortical and meningeal hemorrhages do not cause death, there is liability of permanent injury to the brain. Very little can be done in hemorrhages but to leave them to nature. If there is fracture, a trephine may be used, but in some cases where there is no fracture or depression, it is difficult, and, at times impossible, to locate the hemorrhage. In high forceps delivery one blade of the instrument usually lies over or near one of the eyes, and occasionally the eye is more or less injured. In difficult deliveries, the eye may be enucleated.

[2] L'Obstétrique, vii, No. 6: Jour. Am. Med. Assn., July 16, 1904, p. 228.
[3] Edinb. Med. Jour., Sept., 1903, p. 199.
[4] Jour. of Obstet. and Gyn., Brit. Emp., June, 1903.

TREATMENT OF CRANIAL DEPRESSION IN THE NEWBORN.

Baumm[5] reports four cases, in all of which this condition was the result of difficult labor because of narrow pelves, the pressure of the promontory in three cases producing deep impressions in the skull, and in the fourth case causing fracture of the frontal bone. In the first case he thought of a corkscrew, and after sterilizing the instrument, bored into the bone, gave a pull, and suddenly the skull was rounded out, and the child's breathing and heart action improved for a time, but it soon died. Subsequent section showed no injury to the brain, but an internal cranial hemorrhage. The second case was a repetition of the first; in the third, however, the child lived and became healthy and strong. In the fourth case, as the skull was fractured, the corkscrew was more easily inserted, the skull was more readily restored to its normal shape, with complete recovery of the infant. In these cases it may be said that the child would have lived without the operation, but it is probable that there would have been permanent deformity, with defective brain action. Hence Baumm feels justified in recommending the use of the simple procedure mentioned in cases not too difficult, and always to strive for the removal of any skull depression.

PLACENTATION IN A UTERUS BICORNIS.

Herzog[6] obtained a bicornuate uterus removed at operation, with an early pregnancy in the right side. He was able to demonstrate from the specimen that the syncytium is of fetal origin, and that it is not developed from uterine epithelium. In the left half of the specimen he found that there was a fully developed decidua, in every respect identical with the decidua of the pregnant right side, so far as true decidual structures are concerned, with a distinct differentiation into a decidua compacta and a decidua spongiosa, and with the former containing enormously enlarged capillaries (blood sinuses), which were everywhere closed and not opening into intervillous spaces. Sections of the cervix showed that the muscularis was hypertrophied, with the individual fibres of the same size as the fibres of the muscularis of the body. A great tortuosity of the vessels was manifest by a great number of vascular lumina, seen everywhere in the cervical tissues. The mucosa showed a moderate degree of glandular hypertrophy with the surface of the mucosa thrown into folds. But the surface and the glandular epithelium were of the type found in the non-pregnant uterus. The interglandular connective tissue was quite

[5] American Medicine, July 4, 1903, p. 40: Zentralb. für Gynäk., May 9, 1903, p. 569.
[6] Am. Jour. of Obstet., June, 1904, p. 729.

vascular, and the interglandular connective tissue cells were fusiform and markedly enlarged in size, though not approaching the very large size of the true decidua cells, as found in the decidua on either side of the uterus duplex.

HYGIENE OF INFANCY.

Pinard [7] reviews the regulations decreed by the mayor of Villiers-le-Duc in regard to the hygiene of infancy by which the mortality has been reduced to zero. Every child born in the community during the last ten years is alive and well-to-day. The mortality had been 20 to 30.8% of the births during the previous decades for a century, with the exception of a single decade, during which the present mayor's father — likewise a physician — had been the incumbent, and devoted much attention to infantile hygiene. The regulations include one to the effect that every needy pregnant woman, married or not, must inform the mayor of her condition before the seventh month, and state the name of the midwife whom she wishes to have attend her. The midwife is then sent by the mayor to examine the woman, to ascertain that there is no albuminuria, no fetal or maternal dystocia, nor vicious presentation. She is paid from the public funds for each visit. If the midwife finds anything abnormal, the mayor is notified, and he sends a physician selected by the pregnant woman, o take charge of the case. Every parturient assisted by the community receives twenty cents a day during ten days after the confinement if she remains in bed. This amount is paid to her at the end of the ten days. If she gets up before this limit, she forfeits this sum. Other regulations specify points in regard to the feeding, fortnightly weighing of the infant, etc., and one promises a reward of forty cents a month, which is paid to every woman who has brought up a child to the age of one year in good condition, breast or bottle fed. This sum is paid to her at that time, computed for every month during the year that the infant has been in her charge.

THE INFLUENCE OF DIET IN PREGNANCY ON THE WEIGHT OF THE OFFSPRING.

Paton [8] says that it became evident in a study of the diets of the families of the poorer laboring class in Edinburgh, that poverty and the resulting deficiency in diet tell most severely in the early years of married life, when a number of young children have to be provided for, and he brings up these questions: How far does malnutrition of the mother during pregnancy influence the growth of the child? Do the children of the poor and badly nourished start life at a lower level than the offspring of those who are better fed? He cites Prochownick, who concluded that by restricting the diet of the mother, the size of the child may be markedly diminished, and his forty-eight cases in which, as a result of such regulation, the average weight of the child was: in 24 males, 2,960 gms., and in 24 females, 2,735 gms., the male children being 11% under the average, and the females, 14%. It seemed to Paton that the investigation of the question in the human subject is unsatisfactory, since so many disturbing factors come into play during pregnancy, and since it is difficult to determine whether the diminished size of the child is the result of less complete growth, or simply the result of premature labor.

Paton made a similar test with guinea pigs, one series of seven being fully fed and another kept on a low diet. The average weight of the offspring of the latter was 28% below that of the normal animal, and 10% less per gm. for the weight of the mother. He says that the observations, though few in number, are so concordant that they warrant the conclusion that the size of the offspring depends very directly upon the diet and nutrition of the mother during pregnancy. While this explains the easy labors among the healthy lower classes, and confirms Prochownick's conclusion that by dieting the mother, the children of rickety women may be so reduced in size as to be viable, it also probably helps to explain the very high infant mortality among the very poor. The infant starts life at a low level and readily succumbs to the hardships to which it is too often subjected. The nourishment of the maternal tissues seems to take precedence over the nutrition of the fetus. Had the embryo the prior claim to nourishment, we should find that in badly nourished mothers each gram would produce a greater proportionate weight of young than in well-nourished mothers. This is exactly the reverse of what occurs. The mother thus appears to pass on the surplus nourishment to the fetus, and the better the nutrition of the maternal tissues, the greater is the growth of the young in utero.

SUTURE OF RUPTURED PERINEUM.

Zweifel [9] says a medical man in Germany can be fined and imprisoned, besides having to pay compensation to the patient, for neglecting to suture a ruptured perineum. He mentions an actual case in which a medical man was charged with this neglect. He does not regard the position of the general practitioner as being worse in this respect than that of any other man, since there is no suggestion that he is responsible for the rupture. He is, however, responsible for the discovery of the rupture, and for an attempt to rectify it. The defence in this form of case may rely on an opinion that ruptures are capable of healing spontaneously. Zweifel says that he, at all events, has never seen a ruptured perineum heal up, that is, the torn surfaces were never approximated in those cases in which the healing was left to nature. Dealing with ruptures of the third degree, he say that every one will have the same opinion that spontaneous repair is impossible. Since the law will not allow for any lack of knowledge in a practitioner, this defence must

[7] Jour. Am. Med. Assn., Apr. 16, 1904, p. 1053: Bulletin de l'Académie de Médecine, lxviii, No. 11.
[8] Lancet, July 4, 1903, p. 21.
[9] Brit. Med. Jour., Jan. 16, 1904, Epit. p. 11: Deut. med. Woch., Jan., 1903, p. 10.

fail in the court. The next possible defence is that exhaustion on the part of the practitioner, or severe flow of blood, which could occlude the view of the parts might hinder the suture, but this is no excuse for not suturing it the next day. Another excuse offered in the particular case was that the practitioner did not feel justified in giving an anesthetic by himself, and he could not obtain the services of another practitioner. Zweifel points out that the injection of a 1% solution of cocaine will overcome the difficulty. The last defence offered was that an attempt to repair a rupture of the third degree would have been unsuccessful, and therefore he thought it wiser to advise the patient to have the repairing operation performed by a specialist after she had got over her lying-in. Zweifel thinks that there is good reason to advise primary suture, since this is much more likely to lead to good results than the second operation. He admits that it is frequently a failure on account of faulty methods, and to avoid this disappointment he gives a clear account of what he regards to be the best method of performing the operation, and of conducting the after-treatment.

PREMATURE DETACHMENT OF THE PLACENTA.

Gruning [10] says the precipitate detachment of the placenta at its normal site is a rare and dangerous complication of labor, ending almost invariably in death of the child, and often jeopardizing the life of the woman. The first indication of the trouble is usually a small hemorrhage which cannot be accounted for by a placenta previa or by laceration. The bleeding is followed by a profound anemia, out of all proportion to the slight external loss of blood. The uterus increases in size and assumes a round form. It is elastic, and makes palpation of fetal parts impossible. Death of the fetus takes place. The labor pains are feeble and favor further hemorrhage. As to treatment, the author is inclined toward active interference. In his five cases the forceps was used once, version once, in two the bag of waters was punctured, and dilatation by means of Braun's colpeurynter was resorted to in the last. Four children were born dead, two in a macerated condition. The one extracted after version survived. All mothers recovered.

BLOOD CHANGES AS AN INDICATION FOR INTERRUPTION OF PREGNANCY.

Mace [11] establishes an average standard for the blood findings in pregnancy, and then shows that variations from this standard may be an indication for the interruption of the pregnancy. The average of three healthy women, in at least the eighth month, was hemoglobin, 8%; red corpuscles, 4,493,000; whites, 9,640. Variations from this standard he has found are of serious import for the fetus as well as the mother. Besides pernicious anemia, the anemia from recurring hemorrhages entails serious injury to the blood. Pronounced polynucleosis indicates commencing infection, frequently starting in the uterus and causing the expulsion of the fetus sooner or later. It is not necessary to wait for this, if the condition is recognized early by the blood findings. Under the influence of slight but recurring hemorrhages, reds are swept into the circulation, immature and deformed.

[10] American Medicine, Oct. 17, 1903, p. 644: Journal Akousherstwa, April, 1903.

[11] L'Obstétrique, viii, No. 6: Jour. Am. Med. Assn., July 16, 1904, p. 228.

EVIL RESULTS OF DEEP INCISION OF CERVIX DURING DELIVERY.

Hofmeier [12] remarks that voices have been raised in protest against the danger of hemorrhage from Dührssen's incision of the soft parts to facilitate delivery. No one, however, has published anything in regard to the remote evils of the procedure. In two cases recently, a subsequent childbirth proved fatal in one case, and without prompt intervention would have proved fatal in the other. The rigidity of the site of the former incisions resulted in rupture of the uterus wall just above the cicatrix. One patient had passed through two normal childbirths between the incisions and the last fatal birth. If the Dührssen incisions are deemed absolutely necessary, at least they should be made on the front and rear aspects, and not on the sides, near the large blood vessels.

(To be continued.)

[12] Jour. Am. Med. Assn., Mar. 5, 1904, p. 687: Münch. med. Woch., li, No. 3.

Reports of Societies.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

ANNUAL MEETING AT ATLANTIC CITY, NEW JERSEY, JUNE 2, 3 AND 4. 1904.

FIRST DAY — THURSDAY, JUNE 2.

THE meeting was opened with a reception to guests, followed by the usual address of greeting by the president, DR. J. H. HARTMANN of Baltimore, Md., and then the association proceeded to the scientific session.

A CONTRIBUTION TO THE STUDY OF THE SECRETING MECHANISM OF THE NOSE.

By DR. J. L. GOODALE of Boston: After reviewing the literature of the subject, the writer called attention to two arrangements in the nasal mucous membrane for producing the nasal fluid, viz.: the glands and the intercellular spaces of the epithelium and the underlying basement membrane. Up to the present time it had not been determined whether serous glands were present in normal nasal mucous membrane, in addition to the mucous glands, or not; and the writer found that in normal cases the mucous membrane of the respiratory portion of the nose contained both serous and mucous glands in association. He then called attention to the changes produced in the glands of the mucous membrane, and in the canals of the basement membrane, in different pathological conditions, such as chronic inflammations characterized by increase of secretion, chronic atrophic inflammations and vasomotor rhinitis.

Chronic inflammations with increased secretion showed a heightened activity of the mucous glands, irrespective of the secondary changes in the other con-

stituents of the tissues. Atrophic inflammations, with tenacious fetid secretion, showed a complete disappearance of the canals of the basement membrane, while the mucous and serous glands showed a much diminished, but still distinct, degree of activity. In the vasomotor rhinitis there was found a striking increase in the looseness of structure of the epithelium, and in the number and size of the canals of the basement membrane, — an alteration distinctly out of proportion to the moderate increase in the mucous and serous glands.

The normal secretion of the nose consisting, as it does, of mucus and serum from the glands and a large quantity of watery fluid coming by transudation through the canals of the basement membrane and the intercellular spaces, we can readily understand the changes in the character of the secretion in the above-mentioned conditions by the changes found in the secreting organs, that is, the glands and the canals of the basement membrane.

NASAL HYDRORRHEA; REPORT OF A CASE.

By Dr. J. Edwin Rhodes of Chicago, Ill.: The writer detailed the differential diagnosis between the cerebrospinal rhinorrhea and nasal hydrorrhea; defined the latter as a copious flow of watery fluid from the nasal mucous membrane, continuous or intermittent, usually unilateral, though sometimes bilateral, accompanied by other symptoms, such as headache, insomnia, cough, sneezing, and other nervous phenomena. Of the two generally advanced theories as to cause, — (1) that it is a neurosis of the trifacial nerve in the nasal mucosa, and (2) that it is one of the symptoms of a general neurasthenic condition, — the writer inclined to accept the latter.

He then detailed a case in which many different therapeutic measures were tried with no effect, until nitrate of silver was used, 60 gr. to the ounce, after which the discharge ceased in three or four days, with no return. The application caused a violent headache, lasting four or five days.

In discussion, Dr. Swain of New Haven gave it as his opinion that *any* agent, used to the required degree, would have given the same result, as it was the violent systemic disturbance and reaction which caused the cure.

OBSERVATIONS ON THE THERAPEUTIC VALUE OF MEDICATED OINTMENTS IN CERTAIN AFFECTIONS OF THE NASAL CHAMBERS.

Dr. A. W. MacCoy of Philadelphia read a paper with the above title, in which he deprecated the too free use of washes in the nose as inconvenient, unpleasant and often harmful, and made a plea for the use of oils, and especially thin or soft ointments, as menstrua for administering medicaments to the nose, preferring petroleum in some form to anything else.

SOME REMARKS ON THE INTRA-NASAL SURGERY OF TO-DAY.

Dr. J. N. Mackenzie of Baltimore read a paper with this title. The general tenor of the paper was that of protest against many of the radical methods now in vogue. He thought that they were pursued by some operators with a most indiscriminate zeal, and were calculated to bring the modern surgery of this region into disrepute.

One reason for this *furor secandi* was the fact that the interior of the nose would stand a great deal of mutilation without dangerous reaction; but this was no justification of the course so often followed.

The author believed in thoroughness when operations were justified, but he could not accept as valid some of the arguments advanced to justify many of the operations done at the present time on the nose and accessory sinuses.

He felt that relief from the present condition of affairs must come through a better education of the rising generation of laryngologists.

THE ETIOLOGY AND DIAGNOSIS OF OZENA, AND ITS RELATION TO PULMONARY TUBERCULOSIS.

Dr. Clement F. Theisen of Albany, N. Y., read a paper with the above title, a continuation of a paper on the same subject, published in January, 1904, in the *Albany Medical Annals*, with reports of forty cases. He discussed the usually accepted points of diagnosis, *i. e.*, presence of decomposing, foul secretions and crusts, and atrophy of the mucous membrane, and considered the etiology, particularly with reference to sinus disease and acute infectious diseases, such as measles, scarlet fever and diphtheria, and then its relation to pulmonary tuberculosis. His conclusions may be summarized as follows:

(1) Sinus disease probably causes ozena in a certain percentage of cases, or at least may be considered a strong predisposing cause.

(2) Suppurative processes in the accessory sinuses, as shown by Pearce's investigations, are frequently present in certain of the infectious diseases of childhood, particularly scarlet fever, measles and diphtheria, and for this reason these diseases must be considered as at least possible etiological factors of ozena.

(3) That while a certain percentage of cases *are* caused by sinus disease, this is not sufficient to explain the pathogenesis of the whole clinical picture of ozena.

(4) The large number of ozena patients having pulmonary tuberculosis would certainly point to the nasal condition as a strong predisposing cause for the development of the tuberculous condition.

In discussion of the paper, Dr. T. J. Harris of New York said that in a considerable number of cases of ozena he had found a very small percentage with any sinus complication; and in regard to the relation between ozena and tuberculosis, he had found in twelve cases only one tubercular case, that being a tubercular larynx. He referred also to Hamilton's statistics as very different from those of Dr. Theisen, showing very few cases of tuberculosis in conjunction with ozena.

Dr. C. G. Coakley of New York also stated that he had found the association of sinus disease and ozena very rare.

Dr. J. Payson Clark of Boston spoke of the large number of cases of ozena and atrophic rhinitis found in a series of one hundred cases of tubercular laryngitis which he had examined, as compared with the same conditions in a similar number of cases coming to the clinics with other conditions not tubercular.

Dr. J. E. Newcomb of New York referred to a series of cases, seventy in number, of tuberculosis, with not one case of ozena.

Dr. H. L. Swain of New Haven said that he had not found any concurrence of sinus disease and ozena, but that he considered it reasonable that tuberculosis should be associated with ozena, since the latter condition presents such a good chance for the growth of all kinds of bacilli.

Dr. William E. Casselberry of Chicago expressed the opinion that a conclusion on this subject could not be reached until the term "ozena" was either abandoned or more exactly defined, with which opinion Dr. Theisen, the author of the paper, in closing, thoroughly agreed.

A STUDY OF THE FATAL RESULTS OF OPERATIONS UPON THE NOSE AND THROAT.

DR. FRANCIS R. PACKARD of Philadelphia regarded it as surprising that so few fatalities followed in this class of operations, considering the frequency with which they were done. He presented tabulated lists of the fatalities recorded in literature. He found 26 fatalities from anesthesia, — 24 from chloroform, one from a.c.e. mixture and one from ether, the last apparently from bronchitis. Chloroform deaths occurred with special frequency in those patients who presented the "status lymphaticus." Of deaths due to causes other than the anesthesia, he found 22. Of these, fourteen were from hemorrhage after removal of tonsils and adenoids. Other causes were meningitis, from use of perchloride of iron for epistaxis; purulent lepto-meningitis following operation by external incision for the removal of nasal polypi and orbital tumors; meningitis following cauterization, with galvano-cautery of the middle turbinate; meningitis following probing and injection of the lachrymal canal; meningitis after removal of an exostosis, and sepsis and exhaustion following tonsillotomy.

FOUR UNUSUAL TUMORS IN THE NASO-PHARYNX.

This paper, by DR. WALTER F. CHAPPELL of New York, was a report of four cases of tumor, all remarkable for their size, and one for its character and source. One was a very large polyp, projecting into the naso-pharynx; two of the others were very large pharyngeal tonsils, filling the whole naso-pharynx and extending down into the pharynx, and the fourth a large pedunculated growth springing from the left tonsillar region, near the Eustachian tube. In character, as stated by Dr. Jonathan Wright, it was "essentially nothing more than an enormous exaggeration of the so-called mulberry hypertrophies, very frequently seen, in a less advanced stage, at the posterior end of the inferior turbinated bodies. The most remarkable and unique feature of this growth, in this situation, is the occurrence of lymph nodes."

The operations for removal were all through the mouth, and simple.

(To be continued.)

ANNUAL MEETING OF THE MAINE MEDICAL ASSOCIATION

WALTER E. TOBIE, M.D., SECRETARY, PORTLAND, MAINE.

THE fifty-second annual meeting was held in Portland June 1, 2 and 3, in the Common Council Chamber, of the City Building. The President, Dr. Augustus S. Thayer of Portland, presided over the three days' sessions which were largely attended.

The treasurer, Dr. Arthur S. Gilson of Portland, read his report showing a balance in the treasury of $1,696.85, this amount being about half as much as was shown in the report of 1902. Dr. Gilson called attention to several large sums paid out within two years, notably $1,000 appropriated to the Maine Sanatorium for Consumptives and over $800 expended for the semi-centenary celebration. Dr. Gilson felt that the financial condition was on the whole satisfactory, and with the increasing membership looked for a still better showing next year.

DR. BIGELOW T. SANBORN, superintendent of the Maine Insane Hospital at Augusta, read a paper on the "Care of the Feeble-Minded." Dr. Sanborn made a strong plea for the establishment of a school for the feeble minded in Maine. He spoke of the courtesy shown by the Massachusetts authorities, in receiving patients from Maine at the Waverley Institution, but showed that the small number accommodated there was but a fraction of the total number who should receive this form of training.

The following resolutions were presented and adopted by vote of the association:

"*Resolved*, that the members of the Maine Medical Association believe it to be for the interest of the people of Maine that children and young adults who are feeble-minded should be, so far as possible, segregated, instructed, and diverted by useful employment. For this end, the experience of other states has demonstrated the value of state schools for the feeble-minded. Therefore, it is further

"*Resolved*, that the establishment of such a school in Maine is commended to the attention of our state legislature."

DR. WALTER E. TOBIE gave notice of a proposed change in the Constitution abolishing the office of corresponding secretary, and showed that it was a useless office inasmuch as all of the work was done by the recording secretary.

FIRST DAY — AFTERNOON SESSION.

DR. F. L. DIXON of Lewiston, first vice-president, acted as chairman while the president, Dr. Augustus S. Thayer, delivered his address.

DR. THAYER extended a hearty welcome to the members and reflected pleasantly on the semi-centenary celebration of last year. Commenting on medical education he said: "Much hard and good work has been done, and much has been accomplished, but often after long years of waiting. Reforms are usually slow in coming and require persistent and long continued effort. By this persistent effort, largely due to this association, medical education has made rapid strides in our state. Fifty years ago our medical school had five professorships, and these five professors gave what instruction was given in the school. Three years of study, including two courses of lectures of three months each, was required for graduation. Now the school has fourteen professors, six instructors and four demonstrators. Four years of study is required, including four courses of lectures of eight months each. By this persistent effort we now have on our Statute Book a law enabling those teaching anatomy and surgery to pursue their courses without becoming criminals. But to accomplish this it took over forty years."

Regarding reorganization: "The committee to whom was referred the subject of organization of the profession throughout the state upon the general plan proposed by the American Medical Association will make its report. I anticipate that this report will favor the new plan, but whatever this report may be, it must come before you for final action. I trust you will all be prepared to give it that careful consideration that the importance of the subject demands. Should the report favor the new plan, and should the association vote to ratify the same, it would mean a complete reorganization of our association. Let us not forget that under our present organization this association is an independent body, subject to no dictation from outside sources. What it may become, should you decide to make the change, is an important matter for you to consider."

DR. THAYER urged that action be taken toward securing legislation making vaccination compulsory, and recommended that a committee be appointed for that purpose.

DR. WALTER E. ELWELL of Togus presented the report of the Committee on Legislation regarding Victims of Drug Habits. The committee presented a

proposed law for voluntary commitment, which required that general hospitals receiving aid from the state should be obliged to receive such patients and maintain for this purpose a suitable room or rooms.

The report was accepted and a committee appointed to secure, if possible, the proposed legislation.

DR. JAMES E. KEATING of Portland read a paper on "Fallacious Kidney Disease." DR. ALFRED MITCHELL, Jr., of Portland read a paper on the "Treatment of Prostatic Hypertrophy." DR. GEORGE H. COOMBS of Waldoboro read a paper on "Appendicitis in Country Practice." DR. JAMES A. SPALDING of Portland read a paper on "Medical Mistakes."

FIRST DAY. — EVENING SESSION.

DR. H. L. BARTLETT of Norway presented the report of the visitors to the Maine Insane Hospital. DR. WELLINGTON JOHNSON of Augusta read a paper on the "Three Stages of Labor." DR. GEORGE P. MORGAN of Dover, N. H. read a paper on "Neurasthenia."

SECOND DAY. — MORNING SESSION.

DR. SETH C. GORDON of Portland read the report of the Committee on Organization in accordance with the plan proposed by the American Medical Association. The report favored the plan and called attention to its advantages, but after a lengthy discussion it was not adopted. The feeling seemed to be that the present organization was so satisfactory that no change was indicated, but in order that the members might act intelligently, it was voted that the committee be continued, with instructions to furnish the details of the plan to each member.

The objections presented were: That the State Association would lose, to a great extent, its independence; that it would greatly increase the amount of clerical work and add expense; and that county societies might admit members ineligible under the present code of ethics of the state association.

DR. GALEN M. WOODCOCK of Bangor read a paper on "Rectal Alimentation." DR. LANGDON T. SNIPE of Bath read a paper on "Life Insurance Examinations." DR. W. M. SPEAR of Rockland read a paper on "Sub-Acute Intestinal Obstruction."

SECOND DAY. — AFTERNOON SESSION.

DR. G. M. WOODCOCK of Bangor read the report of the visitors to the Eastern Maine Insane Hospital.

The election of officers then took place as follows: President, Dr. F. L. Dixon, Lewiston; 1st Vice President, Dr. R. D. Bibber, Bath; 2d Vice-President, Dr. A. H. Stanhope, Dover; Corresponding Secretary, Dr. A. H. Sturtevant, Augusta.

Censors: Drs. H. F. Twitchell, Portland; D. M. Hayes, Henderson; S. P. Warren, Portland; C. E. Williams, Auburn; George C. Parker, Winthrop.

The following officers were previously elected for a term of years: Recording Secretary, Walter E. Tobie, Portland; Treasurer, Arthur S. Gilson, Portland.

DR. WALTER E. TOBIE read his report as necrologist, recording thirteen deaths within a year, including two charter members.

DR. WALTER E. ELWELL of Togus read a paper on "The Oblique Incision and Single Flap Method of Inferior Chiloplasty." Dr. Elwell's paper was illustrated by diagrams, and he presented for inspection two patients on whom he had operated by this method. DR. H. B. PALMER of Farmington read a paper on "Some Surgical Diseases which the Physician must Recognize." DR. B. L. BRYANT of Bangor read a paper on "Leucemia with Special Reference to the Spleno-Medullary Form," which was illustrated by charts.

DR. C. C. O'BRION of Groveton, N. H., was introduced as delegate from the New Hampshire Medical Society.

The session adjourned at 4 o'clock for the annual dinner at Riverton.

SECOND DAY. — EVENING SESSION.

DR. A. K. P. MESERVE of Portland, secretary of the State Board of Registration, presented a paper on the "Medical Registration Law," which was read by DR. CHAUNCEY R. BURR of Portland. After reviewing the results of registration in Maine and commenting on the reference to reciprocal registration: "Under the rules resulting improved conditions," Dr. Meserve said, "as adopted and approved July 31, 1901, any person who has been examined and registered by this board, can register in New Jersey, Illinois, Michigan, Ohio, Wisconsin, and probably in New Hampshire and Texas, without further examination if they are graduates of accepted schools.

"Thus it will be seen that reciprocal registration in other states is made possible for those examined and registered by state boards, but in what status does it leave the survivors of the 1,021 graduates of medical schools, who were practicing in the state when the law went into effect and who embrace the foremost physicians and surgeons of the state to-day? Should any of us desire to move to another state, an examination stares us in the face, not an easy nor pleasant grind for one who has been out of school for ten or fifteen years and engaged in busy practice.

"To meet this class most of the states mentioned have adopted another rule which reads: 'That a certificate of registration, or license issued by the proper board of any state, may be accepted as evidence of qualification for reciprocal registration in any other state, provided the holder of such certificate had been engaged in the reputable practice of medicine in such state at least one year, and provided that the holder thereof was, at the time of such registration, the legal possessor of a diploma, issued by a medical college in good standing in the state in which reciprocal registration is sought, and that the date of such diploma was prior to the legal requirement of the examination test in such state.' This qualification the Maine Board has not yet voted to accept. But ought we not to do it? It seems to me that with the proof of good moral character and professional standing required by our rules for all reciprocal registration, that no possible harm could come to the people of the state or the profession thereby."

It was voted that the chair appoint a committee on legislation as regards registration to confer with the State Board of Registration.

The Committee on President's Address reported favorably on the recommendation that restrictions be placed on the payment of money for purposes, other than the legitimate running expenses of the Association, and the recommendation that steps should be taken to secure legislation governing the control of water supplies, but took no action on the recommendation regarding compulsory vaccination.

DR. FREDERICK C. SHATTUCK of Boston delivered the annual oration, the subject of which was "ANOMALIES OF THYROID SECRETION.[1]"

The Association extended a vote of thanks to Dr. Shattuck.

THIRD DAY. — CLOSING SESSION.

The closing session was devoted entirely to business.

The Board of Censors made its final report recommending:

That the next annual meeting be held in Portland,

[1] See Journal, June 30, 1904, p. 689.

on the first Wednesday, Thursday, and Friday in June, 1905.

That the election of orator be left to the next Board of Censors, with power.

That the president and secretary have power to fill vacancies occurring in delegations to other State Societies.

That applications for membership received this year and not acted upon be referred to the next Board of Censors.

The president appointed as a Committee on Medical Registration: Drs. F. C. Thayer, Waterville; W. P. Giddings, Gardiner; B. L. Bryant, Bangor; F. W. Searle, Portland; George R. Campbell, Augusta.

The Committee on Legislation relative to Venereal Diseases was continued for another year.

The Association voted thanks to the President, Business Committee, Entertainment Committee and City Government.

Recent Literature.

Le Malattie dei Paesi Caldi, Loro Profilassi ed Igiene; con un' Appendice, la Vita nel Brasile. DOTT, CARLO MUZIO. p. 562. Milano. 1904.

This volume is one of the Hoepli series of scientific manuals, and contains the collated experience of Surgeon C. Muzio of the Royal Italian Marine, with reference to the diseases of hot climates. In addition to the many cuts with which it is illustrated, there are several geographical charts showing the prevalence of the plague, malaria, beri-beri, leprosy, anchylostomiasis, and other diseases.

The following general classification of diseases is adopted in the work:

General diseases, localized diseases (including those in which the presence of a specific germ has been proven, those in which the existence of such a germ though alleged, is not accepted, and those in which the cause is unknown), diseases and lesions produced in man by animals and parasites of hot countries, poisons, common infectious and other diseases, and sunstroke. To these the author adds a chapter upon the hygiene of hot climates, having special reference to clothing, food, water, habitations, etc.

An appendix is added in which are presented the author's observations upon those plants, insects, reptiles, and other objects which are in any way related to health and life in Brazil.

Surgery of Paralysis. By A. H. TUBBY and ROBERT JONES. London: Macmillan & Co.

That the writers have been able to present to the public such an excellent little book as this, written upon a large subject with so succinct and clear statements of the methods of treatment of the paralytic affections, is due to their thorough familiarity with the subject as well as to their sound judgment and excellence of good sense. The book is not only the best in the English language upon the subject, but the form is admirable, the subject being well presented and in a way interesting to the general practitioner as well as to the surgeon. The progress in many branches of surgery is now so rapid that the printer's ink is hardly dry in a publication before newly collected facts often necessitate the revision of the statements of any writer. The recent evidence presented by German surgeons, Lange and Hoffa and others, of the value of subperiosteal transplantation as well as the use of silk sutures (referred to in the work under consideration) need at present more full consideration than seemed necessary when the work was first written.

Aseptic and Antiseptic Preparation and Treatment of Emergencies after Abdominal Surgical Operations. By GEORGE WACKERHAGEN, M.D., Ex-President Brooklyn Surgical Society, etc., etc. New York: E. R. Pelton. 1904.

This brochure of forty-four pages has been prepared by its author for the purpose of obtaining a ready reference hand-book for the use of junior assistants and nurses. It is not claimed that it suggests anything new as regards symptom or treatment; it is rather a practical system of preparation for abdominal operations, and an outline of treatment of possible post-operative emergencies. Among these, nausea, vomiting, tympanites, secondary hemorrhage, intestinal obstruction and peritonites are considered.

The book is so classified that specific details can be referred to by number, thus avoiding the necessity of writing full directions for a nurse or assistant each time such directions are required. The character of the text is personal and local, but the design of the book is excellent, and it is clearly, concisely and systematically presented.

Fatigue. By A. Mosso, Professor of Physiology in the University of Turin. Translated by Margaret Drummond, M.A., and W. B. Drummond, M.B., C.M., F.R.C.P.E. New York: G. P. Putnam's Sons. London: Swan Sonnenschein & Co., Ltd. 1904.

In this volume of the Science Series Professor Mosso of the University of Turin offers a somewhat popular exposition of his theory of fatigue, the book now appearing in English for the first time, translated by Margaret Drummond and W. B. Drummond of Edinburgh. The text, which occupies 334 pages of small octavo form, is entertainingly written in a style so popular that it may be read intelligently by persons wholly unacquainted with the scientific aspects of the subject. The book is already known to students of physiology, and it is, therefore, not necessary here to enter into detail regarding the subject matter beyond drawing attention to the fact that it takes up the various physiological theories of fatigue largely on an experimental basis, and makes certain practical applications to school work and matters of ordinary hygiene in a way which should commend it to persons interested in educational matters as well as to physicians.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, SEPTEMBER 1, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

PROTRACTED AND RECRUDESCENT INFECTION IN DIPHTHERIA AND SCARLET FEVER.

ONE of the most perplexing questions with which physicians and health officers have to deal in the management of infectious diseases is that of "return" cases of scarlet fever, and diphtheria, many of which appear at first sight to be due to the return of cases from isolation hospitals to their families.

One of the ablest of English health officers has contributed a very carefully prepared paper upon this subject, in which he gives the results of ten years' experience in an English town.[1] Some of the most important points in connection with this inquiry are stated in the following summary:

1. Cases of protracted and recrudescent infection are relatively infrequent, and represent only a small percentage of the total cases of these two diseases.

2. Such cases are oftenest associated with nasal and aural discharges, though not always. Accurate and detailed statistics on this point are wanting. "In my experience the proportion in which there are no mucous discharges is small, but their occurrence is undoubted."

3. The absence of this information indicates the necessity for more accurate records of cases of protracted and recrudescent infection, and for this purpose Newsholme presents a model form of record.

4. The occasional occurrence of such "return" cases emphasizes the necessity for post-isolation supervision of patients, whether treated at home or in hospital. This supervision must be medical and should be carried out officially. In Brighton scarlet fever patients are not allowed to return to school until four weeks, and diphtheria patients not until six weeks, after they have been released from home or hospital isolation.

5. A study of the "return" cases enumerated in Dr. Newsholme's paper indicates that in most instances the rhinorrhea, which is oftener than any other morbid condition associated with protracted infection, was already present when the patient was first isolated, or appeared soon afterward. This fact has an important bearing on the origin of "return" cases. It suggests the belief that a condition determining protracted infectivity may have been similarly present from the first in the infecting patients, in whom no obvious mucous discharge occurred.

6. If it be assumed that a morbid condition of the naso-pharynx is a necessary condition of protracted infectivity, do this morbid mucous membrane and its crypts act as a continuing incubator of scarlatinal or diphtherial germs originating from those which caused the patient's illness, or do they act merely as a suitable storehouse for germs derived from other acute patients in the same room — a storehouse which can only be emptied by one or more weeks' absence from acute patients? The author believes that the specific micro-organisms of these diseases remain in crypts of the naso-pharynx, which act as active "incubators" of them. This applies to cases continuously infectious. In those cases in which infection temporarily disappears, to recur under the influence of a catarrh or some traumatism, etc., it may be supposed that the specific micro-organisms have been lodged, and at least partly incarcerated in the follicles, and possibly in deeper lymphatic tissues or glands.

7. There is definite evidence that in some instances infection has become dormant, to be again roused into activity by various circumstances, as by the disturbance caused by the cessation of isolation, possibly in connection with baths at the time of discharge, or at a later period by a catarrh or other means tending to lower personal resistance.

8. Observations show a close analogy between the phenomena of protracted and recrudescent infection in scarlet fever and in diphtheria. In both diseases infection is occasionally exceptionally prolonged. From a clinical standpoint it must still be regarded as an open question whether protracted infectivity is more common in one of these diseases than in the other. In both diseases infection occasionally recrudesces.

[1] Protracted and recrudescent infection in diphtheria and scarlet fever. By A. Newsholme, M.D., F.R.C.P., Medical Officer of Health, Brighton, England. Public Health, Aug., 1904, p. 690.

This may occur either in the form of a definite relapse, having all the clinical features of the disease in question; or, more commonly, the only accompaniment of recrudescent infection is the recurrence of a mucous discharge, and even this indication of the possibility of recrudescence may be absent.

Newsholme considers the long accepted view of the profession, that the desquamating period is the most infectious stage of scarlet fever, as erroneous. "We now know," he says, "that desquamating patients may, as a rule, safely be sent home in the sixth, or even the fifth, week of their attack of scarlet fever, if they have no mucous complications. Some other cause must, therefore, have given rise to the widespread conviction that cases of scarlet fever were frequently infectious to the very end of desquamation. Such cases really occurred, or the conviction would not have arisen. Doubtless they were the cases of persistent or recrudescent infection which now exercise our minds in relation to hospital administration. But when this conviction was formulated, there were no isolation hospitals for scarlet fever."

THE SEWING-MACHINE AND GYNECOLOGICAL AFFECTIONS.

SOME twenty years ago we were told impressively by the most eminent teachers of the diseases of women that the sewing-machine was the root of much gynecological evil; woman could use her legs for any other purpose without danger to her health so long as she did not run a sewing-machine. Of late years the profession has heard less and less of this theory which has finally become, as is so often the case with the decadent theories of the profession, the property of the laity.

Now comes Nussbaum with an article [1] on the influence of sewing-machine work on health, in which he undertakes to show from statistics and his own experience that the position at the machine and the constant use of the legs are liable to cause congestion and consequent inflammation of the female genitalia.

When a plausible theory has once secured a firm place in the mental *armamentarium* of the unprogressive it often requires a severe shock to dislodge it, and, failing that shock, it remains to serve as a guide to thought and action for many a day. That uterine diseases are common among women who use the sewing-machine is an undoubted fact; that they are less common in the large shops where the machines are operated by steam or electric power than in those where the motive power is the foot or in the shops without machines where women sit working all day in constrained attitudes has not been demonstrated.

Bicycling, playing the organ or pianola, running, walking, swimming, dancing and tennis, in all of which the legs come into play vigorously, are generally admitted to be beneficial to pelvic disorders. No facts have been adduced to prove that the troubles attributed to the sewing-machine are not in reality due simply to prolonged sedentary occupation without proper exercise to offset it.

Reasoning from *a priori* grounds it would seem as if the movements of the muscles of the lower extremities would bring blood to the legs and feet and to that extent away from the pelvis; surely this is the province of exercise of the body as a whole, to increase the activity of the heart, quicken the circulation, and send the blood to the muscles and extremities and away from the internal organs. Sitting in one position for hours at a time, often in unhygienic surroundings and with tight clothing, is conducive to a sluggish circulation, and to passive congestion.

We may advise our patients to rise and change their positions as frequently as possible, to loosen their corsets, to sit erect and breathe deeply, and, most important of all, to take active exercise in the open air, if only a little gymnastics, for a short time before and after meals; at least, let us relegate the sewing-machine bogey to the limbo of disuse.

[1] Wiener Klinische Rundschau, xviii, No. 17, 1904.

A HEALTH EDUCATION LEAGUE.

AN organization with the foregoing title has recently been formed, with its office in Boston, and having as its object "the prevention of avoidable disease by the education of the people to high standards of personal and public health." The president of the society is Dr. D. A. Sargent of Cambridge; vice-president, Dr. H. S. Pomeroy; secretary, Rev. George H. Cate; treasurer, A. L. Darrow. Among the directors are several well-known instructors in sanitary science and members of sanitary organizations.

A primary object of the League appears to be to supplement the teaching of hygiene in professional and technical schools by education of the people, since "sanitary progress depends upon society's appreciation of health rather than upon technical knowledge of disease."

Much of the work already done in public hy-

giene is neutralized by the ignorance of the people as to what constitutes pure air, pure water, pure food, and healthful environment, and hence the indifference of the public as to the importance of enforcing public sanitary measures. The League seeks to reach the people through the public schools, the churches, clubs, gymnasiums and other institutions, if suitable lectures, booklets and circulars are provided.

There is undoubtedly a wide field of usefulness for such an organization, and it is to be hoped that it will receive hearty support. Its first publication, a tract entitled "Hints for Health in Hot Weather," is a decided success. It is not only an up-to-date publication scientifically considered, but also a sample of terse, intelligible Anglo-Saxon, absolutely freed from technical terms, and well adapted to popular requirements.

The League is in urgent need of funds for conducting this important educational work and for publishing its literature, not only in English, but in other languages, also for securing competent persons to arouse and instruct the people in the most needy places, and for other similar purposes. It appeals especially to the medical profession, since it is more closely in touch with the people than any other profession or class. Physicians have exceptional opportunities for observing the habits and social condition of the people with regard to sanitary matters, and can materially aid the society, not only with financial aid, but with intelligent co-operation.

Contributions may be sent to Mr. A. L. Darrow, treasurer, 113 Devonshire Street, Boston, who will promptly receipt for the same.

MEDICAL NOTES.

Cameron Prize. — It is stated that the Cameron prize of Edinburgh University has been given to Professor Finsen of Copenhagen for his work in practical therapeutics.

Appointment to Chair of Tropical Diseases. — It is announced from Washington that Surgeon P. A. Lovering has been ordered to Washington to take the new chair of tropical diseases at the Navy Medical School. This chair has been founded in view of the duties in tropical countries now more and more devolving upon the navy and marine corps.

Medical Department, University of California. — Hereafter the medical department of the University of California is to be closely affiliated with other departments of the university. This progressive step is in line with the general tendency observable throughout the country of bringing medical instruction into the same category as other departments of education.

Bequests. — By the will of Alexander C. Hutchinson, whose death occurred in New Orleans Dec. 7, 1902, an estate of nearly one million dollars was left for charitable and benevolent purposes. It has recently been announced that the Eye, Ear, Nose and Throat Hospital, St. Ann's Asylum and the House of the Good Shepherd, all of New Orleans, have received $20,000 each. The remainder of the property has been left to the medical department of Tulane University.

A Centenarian. — Dr. C. F. H. Wilgohs died Aug. 26 in Akron, Ohio, at the reputed age of one hundred years and eight months. He was born in Denmark in 1803. His father was a physician and served in the German army, and the son for a time did likewise. He also enlisted in the war for Polish independence and was many times wounded. Later he came to America, and for the greater part of his life has practised medicine in Ohio.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon Aug. 31, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 51, scarlatina 11, typhoid fever 47, measles 1, smallpox 0.

Anthrax at Burlington, Vt. — It is reported that anthrax is prevalent on a farm in Burlington, Vt., a number of cattle having died of the disease. A case has also appeared in a man who had to do with these cattle, and his condition is regarded as serious. It is suspected that the origin of the anthrax was Australian wool used in the neighborhood.

Boston Mortality Statistics. — The number of deaths reported to the Board of Health, for the week ending Aug. 27, was 152 against 180 the corresponding week last year, showing a decrease of 28 deaths, and making the death-rate for the week 12.90. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 35 cases, 2 deaths; scarlatina, 9 cases, no deaths; typhoid fever, 42 cases, 1 death; measles, 4 cases, no deaths; tuberculosis, 41 cases, 16 deaths; smallpox, no cases, no deaths. The deaths from pneumonia were 7, whooping

cough none, heart disease 14, bronchitis 1, marasmus 5. There were 16 deaths from violent causes. The number of children who died under one year was 51, under five years 61, persons over sixty years 30, deaths in public institutions 60.

NEW YORK.

A SMALL BABY. — As an offset to the enormous infant recently born to a young Italian woman in Manhattan, we now hear of the smallest baby ever received in any like institution, which on Aug. 7 was brought to Dr. Couney's incubator at Coney Island by Dr. C. S. Patterson of Brooklyn. This remarkable infant, a male, weighed, it is stated, just one pound and six ounces and measured eleven and a half inches in height, and it is claimed that no record exists of a child of its size having lived more than a few hours. In addition to having the most vigilant care, it is being given frequent inhalations of oxygen, on account of the feebleness of its circulation, and Dr. Couney regards it as having a fair chance of living.

REDUCTION OF INFANT MORTALITY. — The New York Health Department has formulated, according to the *Medical News*, the following instructions regarding ordinary nursery hygiene and sanitation, in the hope that thereby the infant mortality may be decreased:

First — Nurse the baby, and nurse it regularly, about every three hours. If you cannot nurse the baby, consult your own physician or send to the Department of Health for a physician. *Second* — Do not give the baby condensed milk. *Third* — Never use the loose milk sold in grocery stores as food for the baby. *Fourth* — Never give the baby raw milk in warm weather. *Fifth* — Use only bottled pure fresh milk, properly prepared and sterilized, and feed the baby at regular intervals, about every two and a half or three hours. *Sixth* — In the morning prepare and sterilize enough milk to last the baby during the day and until the next morning. Cover each bottle and place on ice after sterilization. *Seventh* — See that the nursing bottles and nipples and all dishes used to hold the milk are kept absolutely clean. Wash these utensils in hot soap suds and then rinse in scalding water each time before using. *Eighth* — The water that is used to dilute the milk must be boiled. *Ninth* — Send to the Department of Health for a circular telling just how the milk should be prepared and how the baby should be fed and cared for, or notify the Department of Health that you want a trained nurse to show you how to prepare the food. *Tenth* — Send at once to the Department of Health or for your own physician if the baby becomes ill. Stop giving milk during the illness of the child, and give the milk only when the physician directs it.

Obituaries.

PROF. KARL WEIGERT.

IN the recent death of Prof. KARL WEIGERT of Frankfurt a. M., Germany loses another of her most brilliant and productive medical men. The night before his death he was apparently in his usual condition of health, and evidence of serious illness had not been suspected. The cause of his death proved to be disease of the coronary artery with thrombosis.

Weigert was born at Münsterberg in Schlesien on the 19th of March, 1845. His parents kept the first inn of the town, which became in its way a center for the region round about. Weigert never lost interest in the remembrance of these early days and the simple life associated with them. Later he studied in Breslau, particularly under the physiologist Heidenhain, and later in Berlin where DuBois, Virchow, Langenbeck, Traube and other distinguished men were teaching. His first assistantship, which was interrupted by the Franco-Prussian war, was in 1868 in the Breslau Pathological Institute. After the campaign he worked in Lebert's medical clinic and devoted his time to the study of practical internal medicine until Cohnheim offered him the position of first assistant in the department of pathology at Breslau. Thereafter he became a devoted follower of Cohnheim, and in 1878, when Cohnheim was called to the professorship of pathology in Leipsic, Weigert soon followed as "extraordinary" professor. At Cohnheim's death, which occurred about six years after his assumption of the Leipsic professorship, although fully fitted for the position through work already accomplished and through capacity for further research, Weigert was denied the succession, owing to his race. This was a period of much discouragement, and, as one of his biographers has said, for a time it appeared that he might be obliged to return to the "misery of general medical practice." In 1885, however, he was called to Frankfurt as director of the Senckenberg Institute, where he has since carried out the investigations which have placed him in the front rank of his calling.

Weigert's earliest important publication was on the subject of the staining of bacteria, published in 1871, and later supplemented by a similar article in 1875. Later, an important article on "Nephritis" appeared from his pen, and also one on "Vein Tuberculosis and its Relation to Miliary Tuberculosis." After his call to Frankfurt his attention was more particularly turned to problems relative to the nervous system, and especially to methods of staining. The myeline sheath stain, published in 1885, followed by his fibrin and elastic fiber stains, and finally his monograph on a new method of staining normal human neuroglia, mark a progress in the study of the nervous system and in microscopic technique in general which few other men have accomplished. In 1896, he read an important paper on new attitudes towards pathological anatomy, and since that time, although not

publishing widely, has kept in closest touch with the advances in pathological anatomy. It was proposed this coming spring, on the occasion of his sixtieth birthday, to collect his widely scattered publications as a memorial volume.

In personality Weigert was genial and endeared himself to the students who gathered at his laboratory from various parts of the world, and particularly from the northern countries of Europe. Many Americans also found a hospitable welcome and opportunities for work under his general direction. Unlike many of his contemporaries he seldom entered into controversy. He wrote only when he felt that he had some special message to convey; he had small patience with the many attempts to modify his methods under the guise of originality, and in general preserved the broad-minded and dignified attitude toward his work and his profession which in this time of competition is not always attained. His loss will be deeply felt, not only at the institute in Frankfurt which he had done much to develop and to whose reputation he had materially added, but also to the wider circle of investigators throughout the world who have been indebted to him for methods of research which have made possible many valuable contributions to medical literature.

WILLIAM RICE PRYOR, M.D.

Dr. William Rice Pryor, a well-known New York surgeon, died in St. Vincent's Hospital, New York, on Aug. 25. He was the youngest son of Roger A. Pryor, ex-Justice of the New York Supreme Court, and at the time of his death was in his forty-sixth year. Dr. Pryor was graduated from the College of Physicians and Surgeons in 1881. Since 1884 he has been professor of gynecology in the New York Polyclinic Hospital, visiting gynecologist to St. Elizabeth's, and consulting gynecologist to St. Vincent's Hospital. He wrote copiously on medical subjects, was a member of many medical associations and enjoyed a large practice. He is said to have been particularly considerate of the poor and to have extended his charity to them with liberality and wisdom.

Miscellany.

MEDICAL WOMEN IN RUSSIA.

By an imperial ukase recently promulgated in St. Petersburg, according to the *British Medical Journal*, women who wish to practice medicine are placed on exactly the same footing as men. The way is freely opened to them to obtain not only a license to practice, but the degree of Doctor of Medicine. Women who have obtained the title of doctor at a foreign university are admissible at once to the Russian state examination. For admission to the Institute for the Education of Medical Women, the possession of a leaving certificate of a recognized girls' school and the passing of a "not too severe" entrance examination are required. The candidate must not, however, be a Jewess, and she must not be less than nineteen nor more than twenty-eight years of age. A Jewess can be admitted only if the number of co-religionists in the Institute does not exceed three per cent of the whole number of students. Applicants for admission to the Institute who have neither home nor relations in St. Petersburg will be compelled to live in a hostel specially established for the purpose.

AN ANTIVACCINATIONIST ANSWERED.

In one of Dr. William Everett's entertaining contributions from England to the Boston *Transcript* (Aug. 27), he narrates the following anecdote, which was told him by an English physician:

A "conscientious objector," being brought before a magistrate to account for refusing to have his child vaccinated, pleaded that he was conscientiously opposed to the process. The magistrate, in a blustering way, insisted on his detailing the grounds for his objections. "Why," said the objector, "I had one of my elder children vaccinated and he has turned out pretty nearly an idiot." "Well," said the justice, "I never heard that vaccination operated to prevent hereditary complaints."

THE REGIUS PROFESSORSHIP OF MEDICINE AT OXFORD.

The *Lancet* comments as follows upon Dr. Osler's Oxford appointment:

Prof. William Osler has been appointed by the King, Regius Professor of Medicine in the University of Oxford in succession to Sir John Burdon Sanderson who has recently resigned the post. We heartily congratulate the Crown upon their choice and no less heartily do we felicitate the University upon adding to the number of their professors so brilliant an exponent of science. It will be remembered that at a meeting of Oxford medical graduates which was held in London on Jan. 5 a resolution was passed, "that in the opinion of this meeting the Regius Professor of Medicine should be a physician who is representative of medicine in its widest sense." Everyone will allow that the new Regius professor fulfills this requirement to the uttermost. As a teacher Professor Osler has had a very wide experience, having filled the chair of medicine at McGill University, Montreal, his first *alma mater*, at the University of Pennsylvania, and at the Johns Hopkins University, the position which he now quits for Oxford. He is the author of the best textbook of medicine of the day, one which enjoys a large circulation among practitioners and students alike, and he is universally recognized as one of the foremost exponents of modern medicine. It is an open secret that there promised to be some difficulty in filling the chair vacated by Sir John Burdon Sanderson, and at the meeting of Oxford medical graduates to which we have referred it was held by resolution that the Regius professor "ought to be a man who could be accepted as the leader and representative in Oxford of the medical graduates and one to whom they would with all confidence give their loyal support." Oxford has now obtained just such a man. In Professor Osler's hands the University may be sure that the medical school will progress upon learned, practical and dignified lines.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 20, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Diarrheal Diseases.
New York . .	3,908,644	1,291	570	39.58	8.46	2.01	1.54	22.69
Chicago . . .	1,021,086	437	155	42.09	5.72	1.14	.91	24.71
Philadelphia	1,407,968	420	155	36.42	5.24	1.42	2.62	17.85
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	201	81	41.86	6.40	—	4.92	21.67
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	—	—	—	—	—	—	—
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	61	22	36.05	—	8.19	1.64	18.03
Boston . . .	617,350	217	90	41.00	5.52	—	2.30	24.38
Worcester . .	136,925	35	11	8.51	5.71	—	—	5.71
Fall River . .	119,349	62	35	43.55	4.84	—	—	37.10
Lowell . . .	104,402	38	22	47.35	7.89	7.89	—	34.20
Cambridge .	100,998	12	5	50.00	—	—	8.33	41.65
Lynn	73,875	22	10	27.27	4.54	—	—	27.27
Lawrence . .	72,348	23	11	47.82	—	—	—	47.82
Springfield .	72,020	23	6	17.39	—	—	—	17.39
Somerville .	70,413	16	4	12.50	—	—	—	6.25
New Bedford	68,863	36	26	51.81	—	—	2.73	43.63
Holyoke . . .	50,538	16	11	56.25	—	—	—	56.25
Brockton . .	46,601	14	7	28.57	—	—	—	21.42
Newton . . .	39,310	6	3	33.33	—	—	16.67	—
Haverhill . .	39,061	11	—	9.09	9.09	—	—	—
Malden . . .	37,205	15	8	33.33	20.00	—	—	26.66
Salem	37,188	17	10	52.93	—	—	—	46.05
Chelsea . . .	36,499	9	3	—	—	—	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	13	6	38.50	7.70	—	—	38.50
Everett . . .	30,209	5	2	—	—	—	—	—
North Adams	29,201	8	3	12.50	—	—	—	12.50
Quincy . . .	26,798	5	1	20.00	—	—	—	20.00
Gloucester .	26,131	—	—	—	—	—	—	—
Waltham . .	25,797	17	1	29.41	—	—	11.76	17.64
Brookline . .	23,576	6	1	33.33	—	—	—	16.67
Pittsfield . .	22,870	3	—	33.33	—	—	—	—
Medford . .	21,956	2	2	50.00	—	—	—	50.00
Chicopee . .	21,692	6	5	33.33	—	—	—	33.33
Northampton	20,314	10	4	40.00	—	—	—	30.00
Beverly . . .	15,807	1	—	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	3	2	—	—	—	—	—
Adams . . .	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park . .	14,500	—	—	—	—	—	—	—
Newburyport	14,478	4	0	25.00	—	—	—	25.00
Woburn . . .	14,315	6	—	33.33	—	—	—	33.33
Melrose . . .	13,819	7	2	28.60	—	—	14.30	—
Westfield . .	13,809	3	2	33.33	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	2	—	50.00	—	—	—	50.00
Revere . . .	13,609	5	1	20.00	—	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody . .	13,406	—	—	—	—	—	—	—
Gardner . . .	13,324	—	—	—	—	—	—	—
Southbridge .	11,716	—	—	—	—	—	—	—
Watertown .	11,575	3	1	66.67	—	—	—	—
Weymouth .	11,350	3	0	—	—	—	—	—
Plymouth . .	11,139	3	1	—	—	—	—	—

Deaths reported, 3,097; under five years of age, 1,279; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,202; acute lung diseases 194, consumption 310, scarlet fever 10, whooping cough 18, cerebrospinal meningitis 29, smallpox —, erysipelas 5, puerperal fever 7, measles 11, typhoid fever 57, diarrheal diseases 710, diphtheria and croup 45.

From whooping cough, New York 2, Chicago 7, Philadelphia 5, Baltimore 1, Boston 3. From measles, New York 7, Philadelphia 1, Baltimore 1, Boston 2. From scarlet fever, New York 5, Philadelphia 4, Baltimore 1. From cerebrospinal meningitis, New York 24, Baltimore 1, Boston 1, Worcester 1, Somerville 1, Watertown 1. From typhoid fever, New York 20, Chicago 4, Philadelphia 11, Baltimore 10, Providence 1, Boston 5, Cambridge 1, New Bedford 1, Newton 1, Waltham 2, Melrose 1. From erysipelas, New York 1, Chicago, 1, Providence 1, Boston 2.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Aug. 6, the death-rate was 19.8. Deaths reported 5,785; acute diseases of the respiratory organs (London) 54, whooping cough 95, diphtheria 46, measles 118, smallpox 7, scarlet fever 20.

The death-rate ranged from 6.5 in Southampton to 37.6 in Liverpool; London 19.6, West Ham 30.7, Brighton 12.4, Plymouth 14.6, Bristol 11.9, Leicester 17.4, Nottingham 23.5, Bolton 15.1, Manchester 25.5, Salford 23.5, Bradford 21.2, Leeds 21.7, Hull 23.4, Sheffield 20.0, Cardiff 13.3, Rhondda 23.0, Wigan 22.4, Merthyr Tydfil 17.2, Smethwick 7.7.

METEOROLOGICAL RECORD.

For the week ending August 20, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	Rainfall in inches.
S.. 14	29.84	68	73	62	85	87	86	S W	S	8	9	O.	F.	.06
M. 15	29.92	72	82	63	76	65	70	W	N E	7	2	C.	C.	0
T.. 16	29.92	73	81	65	73	90	82	W	S	4	5	C.	O.	.03
W .17	29.81	75	84	66	81	54	68	W	W	9	8	F.	C.	0
T.. 18	29.98	69	79	59	74	48	61	W	N W	8	18	O.	C.	0
F.. 19	30.23	63	70	55	58	60	59	N W	S	10	8	C.	F.	0
S.. 20	29.97	68	75	61	89	82	86	S E	S W	15	26	R.	R.	.79
☞	29.96		78	62			73							.88

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

RECENT DEATHS.

JOHN MCCLARY STEELE, M.D., M.M.S.S., died in Worcester, August 1, 1904.

ALONZO CARTER WEBBER, M.D., M.M.S.S., died in Cambridge, August 5, 1904, aged seventy-eight years.

HARRIET RAWSON GOODRICH, M.D., M.M.S.S., died in Salem, August 23, 1904, aged thirty-five years.

SOCIETY NOTICES.

NEW YORK AND NEW ENGLAND ASSOCIATION OF RAILWAY SURGEONS. — The fourteenth annual meeting of the New York and New England Association of Railway Surgeons will be held at the Academy of Medicine, New York City, Nov. 17, 18, 1094, under the presidency of Dr. C. G. J. Finn, of Hempstead, Long Island.

NORTHERN NEW YORK MEDICAL ASSOCIATION AND THE ST. LAWRENCE COUNTY MEDICAL SOCIETY. — These two associations will hold their meeting Oct. 18, 1904, at Ogdensburg, N. Y., the Northern New York Medical Association holding session during the afternoon and the County Society during the evening of the same day.

QUARTERLY MEETING, RHODE ISLAND MEDICAL SOCIETY. — The Quarterly Meeting of the Rhode Island Medical Society will be held in the Hall of the Y. M. C. A., Providence, on Thursday, Sept. 1. Meeting of the House of Delegates at 10 o'clock. General session at 11 o'clock.

AMERICAN ROENTGEN RAY SOCIETY. — The fifth annual meeting of the American Roentgen Ray Society will be held at the Louisiana Building, 911 North Vandeventer Ave., St. Louis, Mo., Sept. 9, 10, 12 and 13.

TRI-STATE MEDICAL SOCIETY OF ALABAMA, GEORGIA AND TENNESSEE. — The sixteenth annual session of the Tri-State Medical Society of Alabama, Georgia and Tennessee will be held at Chattanooga, Tenn., Oct. 12, 13, 14, 1904, under the presidency of Dr. F. B. Sloan of Cowan, Tenn. The headquarters will be at the Read House.

Addresses will be delivered by Dr. William J. Mayo of Rochester, Minn, and Dr. A. J. Ochsner of Chicago.

BOOKS AND PAMPHLETS RECEIVED.

Clinical Urinology. By Alfred C. Croftan, M.D. Illustrated. New York: William Wood & Co. 1904.

Annual Report of the Board of Health of the Department of Health of the City of New York for the Year ending December 31, 1902. New York: Martin B. Brown Co. 1904.

The Practice of Obstetrics. Designed for the Use of Students and Practitioners of Medicine. By J. Clifton Edgar. Second Edition, Revised. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

A Practical Treatise on Genito-Urinary and Venereal Diseases and Syphilis. By Robert W. Taylor, A.M., M.D. Third Edition, Thoroughly Revised. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1904.

Friedberger & Fröhner's Veterinary Pathology. (Authorized Translation.) Translated and Edited by M. H. Hayes, F.R.C.V.S. With Notes on Bacteriology by Dr. G. Newman, D.P.H. Vol. I. London: Hurst & Blackett, Ltd. Chicago: W. T. Keener & Co. 1904.

Original Articles.

WHAT SHALL WE DO WITH PATIENTS HAVING PULMONARY TUBERCULOSIS?*

BY FREDERICK I. KNIGHT, M.D., BOSTON,

Consulting Physician to the Massachusetts General Hospital, to the Sharon Sanatorium and to the Free Home for Consumptives.

The modern method of treatment of pulmonary tuberculosis may be said to have had its inception more than fifty years ago. It then began to be appreciated that great benefit came to certain consumptive cases by a generous diet and outdoor life; and horseback, camp and other outdoor means came to be quite generally recommended by the profession. While the results were good in some cases, they were not usually curative, because the gravity of the condition was, as a rule, recognized late, and also because no restriction was put upon the amount of physical exercise which the patient should take, and many a one rode or tramped himself to death.

The plan of keeping patients under control in an institution was carried out as early as 1839 by Dr. George Bodington of Warwickshire, England, who took a house near his own for this purpose, and gave practically the same treatment as is in vogue to-day, including fresh air day and night. He was followed by Brehmer in 1859, and later by Dettweiler, the latter of whom insisted on the importance of rest rather than exercise in most cases. Koch's discovery of the bacillus gave a decided encouragement and impetus to the treatment of pulmonary tuberculosis, inasmuch as it showed that many cases, cured in their incipiency, were really tuberculous, which might otherwise have been considered doubtful.

We may consider the modern method of treatment to be fresh air, generous diet, often complete rest, and expert supervision, the latter being especially important.

How can we best secure these to our patients?

In considering this question it will be well to divide the patients into three financial classes: (1) Those who are abundantly able to pursue any course recommended without regard to expense; (2) those who can afford only limited time and money; (3) those who must depend entirely on charity.

It will be well also to divide the cases, somewhat arbitrarily, of course, into three pathological classes: (1) The incipient, (2) the somewhat advanced, and (3) the far advanced, and to consider the question what to do with a patient of either of the three financial classes according as he falls into one or other of the pathological classes. I will not attempt to draw a strict line of classification in either regard; the majority of cases will fall naturally into one class or another financially and pathologically, and it would be impossible to discuss at this time those which may fall near the border line.

We will consider first the patient who has incipient pulmonary tuberculosis, and who is abundantly able to do anything or go anywhere to recover his health. Now in such a case it is not necessary to be positively sure of the diagnosis of a pulmonary affection by the crucial test, *i. e.*, the discovery of Koch's bacillus in the sputum; of course we examine for it, but those cases which are, in my opinion, doubtful, only suspicious, may for the sake of safety be treated as if the diagnosis was positive. These cases which are doubtful may be briefly mentioned here. They may show debility, and may or may not cough, with or without expectoration (if present, free from bacilli), but on examination of the chest, there may be found localized at the apex of the lung a few râles. These are, perhaps, the most suspicious of the doubtful signs, and if we know they have developed recently in connection with cough and perhaps fever, they are pretty sure to prove tuberculous, due, perhaps, if there is no sputum, to tuberculous pleuritis, as was long ago insisted by Leaming. Then there are the various slight modifications of the percussion note and respiratory murmur. Of course, it is not necessary to tell the expert that slight relative dullness at the apex of the right lung is normal, yet it is not infrequently pointed out to me by physicians as important.

A great deal of stress is laid upon the variations in respiratory murmur, the prolonged expiration (it must be strictly borne in mind also that the expiratory murmur at the right apex is relatively considerably longer than at the left in health), and the interrupted or deferred inspiratory murmur, but these signs are not enough for a positive diagnosis, neither is the shadow or impaired expansion, as shown in the x-ray picture, or any other sign indicative of slightly increased density; they are suspicious, but not diagnostic. The tuberculin test, even if it could be relied on to denote the presence of tubercle in the body, does not show that it is pulmonary. It may be asked if it makes any practical difference, if tubercle is present in the body, where the process is located. It certainly does, for tuberculosis of the respiratory tract is usually much more serious and requires more prompt and radical treatment than that of other parts; in fact, in some other regions it seems frequently to remain latent for a lifetime. I am willing to concede a probable diagnosis of tuberculosis of the respiratory tract from a combination of early signs and symptoms, but I do not think we are justified in classifying such cases as positively tuberculous without the presence of Koch's bacillus in the sputum. I think they should be put into a class by themselves as "probable incipient cases." Be it understood, however, that I approve of treating such doubtful cases as tuberculous.

There is another class of cases, seldom met, perhaps, but which does exist, and which may be mentioned in this connection. I refer to patients who present no clinical signs or symptoms of respiratory tuberculosis, yet in whose expectoration, tubercle bacilli are accidentally discov-

* Read at the meeting of the American Climatological Association at Philadelphia, June, 1904.

ered. If this condition is persistent, I do not hesitate to say that patients having it should be put at once on restorative hygiene. I recall one such case in which my advice was rejected, in which after a few years the patient, one of the first financial class, abundantly able to take care of himself, broke down with serious pulmonary tuberculosis.

What shall we do with a patient with incipient disease who is willing and able to pursue any course we recommend?

I have said that the essentials of modern treatment are fresh air, day and night, generous diet, often complete rest, and expert supervision. Shall we try to give him these at home? Even if his home is well situated in the country, it is better not to do so, in fact it is well-nigh impossible to carry out the fresh air treatment at home. He may sit on the piazza for an hour or two, but very few will be found to sit out alone all day while the family are gossiping around the fireplace inside. Then, of course, the temptation to do business or other things, now prejudicial, is ever present. Such a patient should go to a community of such patients, where a hygienic mode of life is the rule. Here he can have his own house and family if he likes, but the general tone of the place will make him follow the directions of the physician, and he will find plenty of company in the outdoor life. Many of these communities have started up about sanatoria because the location of the sanatorium is supposed to be especially selected for its salubrity, and because patients can here have the advice of the experienced physicians of the institution. As a rule, a patient of the first financial class can have more comfort and luxury in his own house, but occasionally we meet one whom it is hard to control, and who will do better in a sanatorium. When he has learned the habits of such a place, he may, if he recovers, carry out many of them in his own home.

It is not my purpose at this time to consider special climatic conditions with reference to bronchial irritability or the general nutrition and vitality of the patient, though this is important, very important in some cases, but not entitled to so much consideration since it has been shown that tuberculous patients may recover by means of outdoor life in any climate. Still, the same climatic conditions do not suit all patients, and when possible they must be considered with reference to each individual case.

Of transcendent importance, however, is skilled supervision. Many a life has been sacrificed of patients dispatched to a climate where outdoor life is pleasant, who followed their own inclination in everything, and thought their mere presence in the region was all that was necessary, even if half their time was spent in hotel barrooms, and though they did ride horseback with a body temperature of 103° F.

In the present state of our knowledge we should commit our patient, if possible, to an expert of sufficient experience and wisdom to refrain from unnecessary medication, especially vaunted specifics, but who has sufficient knowledge of general medicine to discover and treat underlying conditions which may have predisposed to the disease, and which may still be aggravating it.

The same course should be pursued with a patient of the first financial class who comes in the second pathological class, though, of course, he must plan for a much longer stay. If a patient of the first financial class falls into the third (or far advanced) pathological class, the question will be whether he should be made as comfortable as possible at home, or make a new home in a better climate for the rest of his life. This depends a good deal on the temperament of the patient, his love of home and old ties, his sensitiveness to temperature changes, and also on the possible existence of an irritable bronchitis, which may be constantly aggravated in a harsh climate, and be very much soothed in a milder one.

I shall never forget the gratitude of one patient who went away knowing he would not return, but grateful for the comparative comfort of his last days.

What shall we do with a patient of the second financial class (of moderate means) and of the first pathological class (incipient)?

It is hardly necessary to repeat that all incipient cases are better treated away from their homes. A good private sanatorium is the best place for most patients with incipient disease who fall into the second financial class. It would usually be well that it should not be very distant from home, in order that the patient may be visited by his family occasionally, and also return at times, with the consent of the authorities, for necessary business. A patient of moderate means with far advanced disease, as a rule, had better husband his resources for comfort at home.

And now comes the question, the most important, perhaps, for the welfare of the community: What shall we do with the third financial class, the patients dependent on charity? Sanatoria and hospitals are what is needed for these patients, of all classes pathologically, and the institutions should be absolutely free and not hampered with small fees, or a declaration of poverty. A beginning has been made, but the ideal condition will not be realized until a poor tuberculous patient in any stage of the disease can have free hospital accommodation. And I believe that the isolation and control and treatment of all such patients, often ignorant and careless, will be an economy, as has been often pointed out before, to the state or city which provides for them.

If the poor are obliged to remain at home on account of lack of accommodation in our institutions, it is of the utmost importance that they should be visited repeatedly at their homes until the family become thoroughly familiar with the hygiene and prophylaxis of the disease.

And now again I must say a parting word on medication: Judicious medication can do so much good, and routine, injudicious medication, so much harm. No medicine, be it cod liver oil

or creosote, or any other supposed specific, is to be encouraged for a minute if it impairs the appetite or digestion of food. The patients who come to us consultants suppose we know the treatment to which we commit them when we send them away from home, and I think perhaps we have been too careless in not knowing more about it than we often do. I was much impressed by what was once told me by a distinguished alienist, — that he never sent a patient to an institution that he did not visit him regularly. In this case he felt a continued responsibility for his patient's restraint, which would differ from the responsibility in our case, of course, but we should have a pretty good general idea, not only of the locality to which our patient goes, but of the treatment to which he is to be subjected.

THE INTERRELATION OF MEDICINE AND SURGERY IN THE TREATMENT OF GASTRIC ULCER.*

BY HUGH CABOT, M.D., BOSTON,

Surgeon to Out-Patients, Massachusetts General Hospital, Visiting Surgeon to Baptist Hospital.

GEORGE G. C. BADGER, A.M., M.D., BOSTON,

Physician to Out-Patients, Massachusetts General Hospital, Visiting Physician to Baptist Hospital.

BUT a comparatively short time ago gastric ulcer, both in its acute aspects and in its chronic complications, was regarded as a purely medical disease, and ten years ago, to advise operation for chronic ulcer would have been to assume a grave surgical responsibility. The now famous statistics of Joslin and Greenough, however, called attention to the fact that the medical treatment of gastric ulcer was far from satisfactory. They showed that while the immediate mortality under medical treatment was not large, yet the ultimate mortality from the disease was very much higher than had been supposed, and that medical treatment could not be expected to permanently cure a very large percentage of the cases. These observations served to draw attention to the very notable work of Mr. Mayo Robson and his colleague, Moynihan, and to the extensive statistics of Mikulicz. From these it appeared that the mortality of surgical operation for this condition was less than the mortality under medical treatment, if the ultimate result in both cases was taken into account. The general feeling, especially in this community, was that the risk of operation was unwarrantable, and the profession was little prepared to offer for surgical treatment any cases except those which were obvious failures under medical treatment and which were too advanced to yield good results in the hands of the surgeon. Within the last two or three years, however, much attention has been paid to the surgical aspects of this question, and many cases have recently been operated upon with excellent results. It seems that the medical conservatism of the past has been extreme, and one is tempted to hope that the surgical activity of the future may be kept within reasonable bounds.

At the outset it may be admitted that the acute and subacute varieties of dyspepsia and acute gastritis are distinct medical conditions, and surgery is little likely to invade this domain. On the other hand, perforating ulcer of the stomach is, and long has been, a distinct surgical condition and one in which cure can only result from surgery.

ACUTE BLEEDING ULCER.

Acute attacks of hemorrhage from the stomach due to gastric ulcer are in the vast majority of cases to be treated medically. Under rest, morphia and nutrient enemata the hemorrhage can, as a rule, be controlled, and the tendency to recur within a short interval is in most cases slight. On the other hand, cases are sometimes seen in which, in the hands of the very elect, control of the hemorrhage by medical means cannot be obtained, and the patient will inevitably be lost unless surgical aid be sought. In a patient reduced by severe acute or long-continued moderate bleeding the conditions are most unfavorable for operation. With a low hemoglobin, as, for instance, in the vicinity of 50%, these patients show a very poor resistance to shock and are much more readily infected than under normal conditions. The mortality from operations upon the stomach is largely due to these two causes, and the mortality will increase immensely with the lowering of the patient's vitality. If, then, operation is to be advised it must be done at the earliest possible moment, when it can be shown that medical treatment has failed or is likely to fail. The indications for surgical intervention may be formulated as follows: Operation is to be advised,

(1) After failure of good medical treatment to promptly stop acute hemorrhage.

(2) If, though the acute hemorrhage has been controlled, slight but frequently recurring hemorrhage persists.

(3) If after the control of a large acute hemorrhage a second hemorrhage occurs within a short time.

All these three indications are based upon one general proposition: That in acute bleeding ulcer the failure of medical treatment must be early anticipated and that it is not wise to wait until the patient is so far reduced as to render the risk of surgical operation very great. The following case illustrates the point we wish to emphasize:

Mrs. D., patient of Dr. A. N. Broughton, to whom we are indebted for the history of the previous condition. Patient had a history of three attacks of hemorrhage during the past three years. On Jan. 2, 1901, there was a profuse hemorrhage of about a pint of bright blood. On Jan. 3, she collapsed without obvious cause and required vigorous stimulation with salt solution and strychnia, in order to tide her over this emergency. For the next week she gained steadily on nutrient enemata and was without hemor-

*Read before the Norfolk District Medical Society, Feb., 1904.

rhage. At this time she was seen by an able surgeon, who advised against operation. Patient's condition was at that time not thoroughly good. She was much blanched, though less so than a week previously. Pulse was good, temperature was normal. On Jan. 21, nineteen days after the first hemorrhage, mouth feeding, milk and lime water, half a dram each, was begun, and following this within a few hours a severe hemorrhage occurred. The question of operation was again considered, and she was seen by another surgeon who considered the condition too unfavorable for surgical intervention. The hemorrhage continued and the patient died three days later. Autopsy showed a duodenal ulcer lying directly beneath the abdominal wall in a very accessible position. There was much chronic thickening about the pylorus and the bleeding vessel was identified in the center of this mass.

This case is one which might have been saved by operation promptly undertaken. In deciding the question of hemorrhage it is not safe to rely upon blood vomited as an early indication. It must be remembered that a considerable proportion of so-called gastric ulcers are really duodenal, and a considerable amount of the blood may go into the intestine and not appear until some time after the bleeding has taken place. The two surest guides are the per cent of hemoglobin and the pulse. A sudden rise in the pulse rate or a tendency to continued, though slight, increase in rate must be regarded with suspicion, unless fully accounted for upon other grounds. If under medical treatment the hemorrhage once controlled does not recur, the clear indication is to wait, but we then come face to face with the question of whether we shall advise operation later, with a view to preventing the recurrence of hemorrhage. Recurrent hemorrhage is particularly characteristic of gastric ulcer, and while we are not in a position to postulate that hemorrhage having once occurred will recur, it is certainly true of a large number of cases. The situation is somewhat similar to that of chronic recurring appendicitis, a question upon which the medical community was long divided but upon which it is now largely in accord. We have come to regard a well-marked attack of appendicitis as so likely to be followed by another that operation in the interval is distinctly to be advised. This position has been achieved by pressure in two directions. First, it has been shown conclusively that the probability of recurrence is very great, and, second, the mortality of the interval operation is so low as hardly to be a serious consideration. But we cannot claim the same clearness in regard to gastric ulcer. Recurrence is not so common, and the mortality of the operation is, even in the most skillful hands, much greater than that for appendicitis. We are not, therefore, prepared to urge the treatment of gastric ulcer by surgical operation in the interval between hemorrhages, but there comes a point at which the tendency to recurrence is so marked and the probability of future immunity is so slight that operation will present the lesser evil of the two. The following case illustrates operation for recurrent hemorrhage:

Mr. C., thirty-three years old. At the age of fifteen began to have trouble with his stomach, frequently vomiting after meals. At this time he was a student, with irregular habits of eating. Attacks of vomiting occurred at irregular intervals, until April, 1901, when he vomited blood. In January, 1902, he vomited half a basin of bright blood and had tarry stools. At this time he was put upon nutrient enemata, which he says were continued for three months. In April, 1902, four months after his last attack, he again vomited half a basin of bright blood and for a time passed blood by rectum. During this time he had a good deal of fermentation and was washing his stomach with the tube with relief. He continued until June, 1903, when he again vomited blood in considerable quantity. During the five weeks previous to Oct. 23, 1903, he had much severe epigastric pain, especially after eating, relieved by vomiting. Examination showed a thin, but well-developed man; weight 91 pounds; best weight 135 pounds; pulse small and easily compressible. Examination negative except for the abdomen, which was moderately tender just below the xiphoid cartilage, and in the region of the stomach succussion could be obtained four hours after taking a glass of milk. Hemoglobin, 55%; skin dry and harsh, urine much diminished in amount, alkaline, without albumin or sugar. Examination with the tube showed much stasis, hyperacidity with hypersecretion. The stomach, in the morning, contained a considerable quantity of gastric juice with excessive hydrochloric acid, when nothing had been taken since the washing on the previous evening. The upper border of the stomach was in normal position, lower border one inch below the umbilicus. He was kept upon medical treatment, with nutrient enemata and careful feeding, with washing before supper and breakfast, for four weeks, when his hemoglobin had increased to 70%, his weight from 91 to 108 pounds. He was taking a moderate amount of food by mouth without distress. At this time he was operated upon. The pylorus was found to be adherent to the liver and thickened and indurated to the size of a pigeon's egg; the duodenum was sharply kinked and adherent to the stomach. Posterior gastro-enterostomy was done without difficulty. Four weeks later he was up and about, taking food freely without pain; the stomach contents were normal. Examination with the tube, six weeks after operation, showed the stomach normal in position and size. The contents left the stomach at about the normal time and was of entirely normal consistency. While it is too early to speak of the results as permanent, this seems to show one of the more brilliant possibilities of stomach surgery in carefully selected cases. Four months after operation he wrote that his weight was 135 pounds and that he was in excellent condition, without gastric symptoms.

The difficulty will come in deciding just what cases are suitable for an interval operation. We might formulate the indications somewhat as follows. We should operate:

(1) Upon cases in which the tendency to recurrent hemorrhage is well marked.

(2) Upon cases in which, though the recurrence of hemorrhage is not a prominent feature, yet the persistence of dyspeptic symptoms renders the patient unfit for an active life.

(3) Upon cases in which a long train of dyspeptic symptoms culminates in an attack of hemorrhage.

We should persist in medical treatment:

(1) In cases of acute hemorrhage not preceded by a train of dyspeptic symptoms and not showing marked tendency to recurrence.

(2) In cases in which acute hemorrhage is followed by apparent complete recovery, and in which the patient is free from serious annoyance from dyspeptic symptoms.

CHRONIC ULCER AND ITS SEQUELAE.

At the outset of any consideration of chronic ulcer we must disabuse our minds of the idea that hemorrhage is a constant symptom of gastric ulcer. The number of cases in which exploratory operations upon the stomach have been done is now so large that we are in a position to show definitely that in many cases hemorrhage either does not occur or is so trivial as to be entirely overlooked both by the patient and his physician. It can readily be demonstrated that chronic ulcer may exist for years without symptoms, or appear merely as a chronic dyspepsia, and that very extensive permanent damage may be done to the stomach and neighboring viscera. A considerable proportion of cases of hour-glass stomach are not preceded by hemorrhage; many cases of dilatation of the stomach due to pyloric obstruction are also free from hemorrhage; and yet in both these cases the permanent injury to the stomach is so great that the necessity for surgical operation is evident. We may divide the cases of chronic ulcer into more or less definite classes, according to the symptoms, and under these headings discuss their treatment.

(1) Cases of severe chronic dyspepsia without marked dilatation of the stomach. These cases have long been supposed to belong peculiarly to the physician, and certainly, in many cases, chronic dyspepsia is a medical disease and under proper treatment may be, if not cured, at least sufficiently palliated to make life tolerable. There are, however, cases in which, in spite of prolonged careful medical treatment, no considerable improvement is obtained, and these patients are practically invalided. More and more cases are accumulating in which these symptoms are proven to be due to chronic ulcer amenable to surgical treatment. They are obviously cases which will remain long in the hands of the medical men before the question of operation is considered, and it is entirely proper that they should so remain, but the point we wish to urge is that, if medical treatment fails to effect marked improvement of the symptoms, surgical advice should be sought and the question of operation carefully considered.

Miss T., thirty. History unimportant until 1899, when she began to have gastric pain after eating, with tenderness in the epigastrium and in the back over an area corresponding to the stomach. Vomiting frequent, never of blood. Diet consisted largely of bread and tea. Physical examination showed thin, pale woman, evidently in pain. Examination negative except for a very tender point just below the tip of the xiphoid cartilage; a corresponding point of tenderness in the back. Hemoglobin was 85%. She was at this time under medical treatment for three months, with much improvement in her general condition. Three years later, in August, 1903, she again came under treatment, having been practically an invalid during this time, unable to do any considerable amount of work without severe dyspeptic symptoms. Physical examination was practically as at previous visit. Because of persistent painful dyspepsia, due, probably, to ulcer, an exploratory operation was advised and eargely accepted. An attempt was made to wash the stomach, previous to operation. This resulted in very severe pain and collapse and therefore no data in regard to the size or position of the stomach could be obtained. Operation showed an hour-glass stomach, with a constriction about four inches from the pylorus, and the opening contracted to the size of a lead pencil. A double plastic operation like the pyloroplasty was done upon the anterior and posterior surfaces of the stomach. Convalescence was complicated by a sharp attack of pleurisy, but was otherwise uneventful. The patient is now eating a free diet such as she has not taken for years and is very comfortable. Three months later had gained thirteen pounds and was looking for work.

A certain number of such cases, at first apparently of chronic dyspepsia, will ultimately show the condition known as hour-glass stomach. This condition can be diagnosed only when well marked with distinct constriction forming two or more pouches. Robson and Moynihan have together and separately collected a very interesting series of these cases, in many of which the diagnosis was made before operation, but there must be a very large proportion of the cases which ultimately become hour-glass stomach which for many years are nothing but chronic dyspepsia and cannot properly be diagnosed as anything else. These must, under treatment, fail to show the improvement which might reasonably be expected, and should be operated upon before they have developed the extensive organic changes seen in true hour-glass stomachs. That in this attempt to relieve chronic dyspepsia which does not yield to medical treatment a certain number of errors will be made, must be generally admitted.

As illustration, a patient with mucous gastritis and colitis, operated upon for supposed gastric ulcer.

Mrs. G., twenty-eight. Seen in March, 1901. Three years before began to have pain in the abdomen, variable in position and character. One year ago persistent nausea and vomiting, retained very little food, pain in the epigastrium, worse after taking food. Vomitus is said to have been streaked with blood, but no great quantity of blood ever vomited. Urine scanty. At this time she began to take morphia for pain, in spite of which the vomiting continued. She had been in bed for the last six months. During the summer the urine was very scanty and was at times thought to be suppressed. Just previous to coming under our care she was operated upon for pelvic pain, with removal of the left ovary, but without relief of symptoms. When first seen she was much emaciated. Examination negative except for the abdomen, where visible peristalsis could be seen at almost any time, most marked in the region of the umbilicus. On the left side at

about the level of the umbilicus was a very sensitive area as large as the palm of the hand, without muscular resistance; no tumor could be felt. This tenderness extended into the left flank, where the left kidney could be felt. The examination of the stomach contents showed catarrhal gastritis. Inflation of the stomach showed the lower border three inches below the umbilicus, the upper border three inches below the ensiform — a somewhat dilated, markedly prolapsed stomach. As a positive diagnosis could not be made, exploratory operation was advised and accepted. The examination of the stomach at operation showed it to be normal. Upon opening the stomach the pylorus was found to be narrow but without organic disease. Examination was otherwise negative. A wide pyloroplasty was done for possible spasm of the pylorus. The immediate result was magical. Patient from having taken a half to three quarters of a grain of morphia a day was made perfectly comfortable and remained so for six months, when she again came under treatment, with symptoms quite similar to those before operation. The washing of the stomach showed an enormous increase in the amount of mucus, upon removal of which, with continued washing for a few days, the symptoms disappeared. About a week later she passed a most perfect mucous case of the large intestine, thus justifying the diagnosis of mucous gastritis and colitis. A more careful study of this case in the light of our present knowledge might have avoided an operation.

Unless more delicate methods of diagnosis are developed an absolute opinion will in many cases be impossible and a certain number of cases must be operated upon, upon presumptive evidence solely. Many practitioners will undoubtedly look with disfavor upon the possibility of operating upon cases in which, after the abdomen has been opened, no lesion can be demonstrated sufficient to justify surgical treatment. It must, however, be remembered that none of the great operations upon which we to-day rely as the main stay of surgical brilliancy have won their present position without a certain amount of unnecessary operating, and it is not probable that we shall arrive at knowledge sufficiently definite to enable us to operate only upon the proper cases without, in the preliminary stage, operating upon a certain number of improper ones. It does not seem, therefore, unduly radical to urge that physicians should be willing to advise investigation in cases of persistent chronic dyspepsia, with the full knowledge that occasional errors will occur, and an exploratory operation will be done without finding sufficient justification for further intervention. Without in any way underestimating the gravity of exploratory operations upon the stomach, we believe that it is well within the facts to state that the mortality from operations of this type should be but a small fraction of 1%, and that such a mortality need not weigh adversely against the extreme amount and long duration of the suffering which many of these chronic dyspeptics undergo. If we are to wait for absolute certainty of diagnosis before advising operation, we shall probably succeed in relieving but a small proportion of people who might have definite relief.

(2) Cases of chronic dyspepsia accompanied by dilatation of the stomach. In a certain proportion of cases of chronic dyspepsia examination by means of the stomach tube will show marked dilatation, and this is frequently regarded as of the atonic variety. It seems probable, in the present state of our knowledge, that the diagnosis of atonic dilatation has been considerably overdone and that many of these cases are due to obstruction at the pylorus of organic origin, due either to ulcerative processes in the pyloric region of the stomach or in the adjoining portion of the duodenum, or to perigastric adhesions originating either from ulcers of the stomach or duodenum, or to inflammatory conditions originating in the biliary passages. Experience in operations for the removal of gallstones shows a considerable number of cases of obstruction of the pylorus, and this is a condition which should always be considered in the attempt to diagnose a case of dilatation of the stomach. The main point at issue in this discussion is what we shall regard as sufficient evidence to prove the diagnosis of atonic dilatation and upon what indications we shall advise surgical investigation. That atonic dilatation is a very real condition is not for a moment to be disputed. It may result from a great variety of conditions tending to general debility, and it is probable that if the stomach tube were more used it would be found to exist more frequently than is now supposed to be the case. But if the dilatation be due to general and not to local causes, it must be demonstrable that the condition is relievable by medical treatment, and this relief must be permanent and not temporary. Thus, if dilatation, however great, can be cured or largely relieved by the proper use of the stomach tube and by general medical and hygienic treatment, the diagnosis of atonic dilatation seems justified. If, on the other hand, these measures fail to produce anything more than temporary relief, we must seek the cause elsewhere. It must be remembered that particularly in women with relaxed abdominal walls and a general tendency to ptosis of the abdominal viscera, sufficient sagging of the stomach may occur to produce more or less obstruction at the pylorus, provided always that the ptosis does not affect the liver and that the adhesions of the pylorus to the under surface of the liver are sufficient to keep it fixed in that relation. Under these circumstances we may have considerable dilatation of the stomach, together with a certain amount of hypertrophy, without any organic disease, and without, therefore, presenting any indication for operation. But under these circumstances proper medical treatment, coupled with an efficient abdominal binder, will generally give sufficient relief to enable us to exclude the presence of organic disease. On the other hand, in organic stricture the history will in many cases be important as tending to show previous acute inflammation either in the biliary passages or in the stomach itself. Such a suggestive history, coupled with present dilatation which

resists medical treatment, may be regarded as evidence of pyloric stenosis and justifies exploratory operation. This is illustrated by the following cases:

Mr. L., thirty. First seen in October, 1902. For five years has had dyspepsic symptoms consisting of pain (worse after meals), gas, but never nausea or vomiting. Constipation. Heavy feeling in the abdomen, with occasional heart-burn. Appetite is good; diets carefully on account of pain. This pain is in the epigastrium close to the tip of the xiphoid and a little to the right, where he says there has been tenderness. No blood ever seen.

Examination was negative except for slight tenderness in the epigastrium. After three months' medical treatment his condition was essentially the same. A diagnosis of gastric ulcer was made. On the 30th of December he came to the clinic writhing with pain, which had come on three or four hours previously without apparent cause. Examination of the abdomen showed the stomach to be much distended, with visible peristalsis and much tenderness. The stomach tube removed 1,500 cc. of partly digested food, with disappearance of the pain, distention and rigidity. One and one-half hours later the pain returned and 1,000 cc. were again removed with the tube. Chemical examination showed hyperacidity. When seen the next morning examination was totally negative and he was discharged in excellent condition. In spite of careful dieting he had, six days later, another similar attack, during which he is said to have vomited four quarts. The diagnosis of pyloric stenosis from ulcer was made, and operation was advised. A median incision was made and the pylorus was found high up, surrounded by a mass of adhesions and adherent to the lower surface of the liver. The whole pyloric region appeared to be a mass of scar tissue without evidence of malignancy. No attempt was made to dig the pylorus out of these adhesions. A posterior gastro-enterostomy was done, with complete relief. One year after operation he had increased fifteen pounds in weight, was in excellent health, eating freely of ordinary diet without pain. Inflation of the stomach showed it normal in size and position and all tenderness had disappeared. This case was one of complete, or nearly complete, pyloric stenosis due to an old contracting ulcer; and it is notable that, though the symptoms of ulcer dated back over five years, no blood was ever seen. There was no evidence of stenosis until Dec. 30, when it became suddenly complete.

Mr. H., thirty. First seen Dec. 15, 1902. For eighteen months had suffered from dyspepsia, gas, pyrosis, nausea and frequent vomiting. Vomitus bitter, often in large quantities and containing remnants of food eaten days before. Never vomited blood or passed any by rectum. Very costive. Examination at this time showed a much dilated stomach, marked stasis, and hyperacidity. Later he entered the Massachusetts General Hospital, and when discharged was advised to follow a carefully planned diet and to wash his stomach daily. A year later he again came under treatment being in miserable health in spite of careful and intelligent carrying out of instructions. He was much weaker and had lost a good deal of weight. He could work but two or three hours a day. The diagnosis of pyloric stenosis, probably due to ulcer, was made and operation advised, but refused. Three months later, in every way worse, he sought help, and eagerly accepted operation. At this time his weight was 108 pounds, his best having been 138.

Examination: Much emaciation and pallor. Hemoglobin 85%; pulse 82, of poor quality, otherwise negative save for abdomen. Epigastrium prominent, splashing easily obtained, no tumor or tenderness made out. Stomach capacity two and one-half quarts. Upper border normal, lower border two and one-half inches below navel. Hydrochloric acid excessive. Marked stasis. Urine normal, but scanty.

Under medical treatment he continued to lose ground, little if any food leaving the stomach.

March 13, 1904, operation showed much hypertrophied and dilated stomach. Contracted scar near the pylorus entirely occluded the opening. Posterior gastro-enterostomy. Uneventful recovery. May, 1904, is entirely free from symptoms. Weight, 128 pounds.

Mr. T., fifty-two, first seen in December, 1900, well illustrates the temporary character of medical relief. Has had "spells of indigestion" for forty years, which consist of pain in the stomach followed by a longing for food, often by nausea, occasionally by vomiting. Three years ago vomiting became more frequent, and at times amounted to from one to two quarts, often containing much old food. Has lost weight and strength. Two years ago, as the result of a vacation, was much improved, but on resuming work ran down hill again. Four months ago, gave up his work on account of ill health. Three days ago says he drank twenty glasses of water and a few hours later vomited two quarts. No blood at any time. Examination shows a much emaciated man, weak, hardly able to walk, with dry, rough skin; otherwise negative except for the abdomen, which is prominent, with marked fulness below the umbilicus, with visible peristalsis and splashing. Hemoglobin, 70%.

Examination with the tube showed that the stomach held nearly four quarts, with very much diminished hydrochloric acid, no lactic acid. Under medical treatment he improved very much. At this time a diagnosis of pyloric obstruction due to ulcer was made. Operation advised and refused. He was seen again about a year later, in much the same condition. During this interval he had carefully and intelligently followed the instructions given him regarding his diet and the use of the tube. He had kept at work and in fairly good health. The daily use of the tube was necessary, however, once, twice, or even three times, to prevent severe dyspeptic symptoms. In the following year he lost ground rapidly from starvation, developed pulmonary tuberculosis, and died. Autopsy showed an immense dilated stomach, with a healed ulcer at the pylorus causing almost complete stenosis.

This case was one particularly suited to operation and would in all probability have given as brilliant a result as the case above described. It is against the withholding of operations from cases of this class that we would particularly advise. The development of pulmonary tuberculosis is not uncommon in these neglected cases.

Before closing we wish to draw attention to the close relation which should exist between the physician and the surgeon in the treatment of these cases. Neither alone can do justice to his patient, and only when they work together and in thorough harmony can the best results be expected. All stomach cases are primarily in the province of the medical man, but it is coming to be believed that many of them ultimately become surgical, and if this is the case

the medical man who has more or less constant relations with a surgeon is likely to allow fewer cases to slip through his fingers and is more likely to be in a position to avail himself promptly of the possibilities of surgery. On the other hand, we are strongly of the opinion that few surgeons are in a position to deal with these cases alone; few are sufficiently skilled in medical diagnosis to come to sound conclusions with any degree of certainty, and they ought, for the best interests of their patients, to avail themselves of the services of a medical man both for diagnosis and treatment. In fact, the part the surgeon will play is comparatively small, and the treatment both before and after operation is in the vast majority of cases clearly medical. Thus, by the intelligent co-operation of both physician and surgeon the best results will be obtained in a large series of cases, and he who attempts to combine in his own person the functions of these two will be certain in the long run to obtain inferior results. We may sum up the indications for surgical treatment as follows:

(1) Perforating ulcers of the stomach.

(2) Bleeding ulcers in which the hemorrhage either cannot be controlled by medical means, or, having been controlled, tends to recur, thus placing the patient's life in immediate danger.

(3) Cases with a long history of dyspepsia culminating in hemorrhage, after the hemorrhage has been controlled by medical means and the patient put in proper condition for operation.

(4) Cases of intermittent recurring hemorrhage which, though individually small in amount, tend by their persistency to produce a profound anemia.

(5) Cases of chronic dyspepsia without dilatation, which fail to yield to proper medical treatment.

(6) Cases of chronic dilatation of the stomach which fail to yield to medical treatment and are not due to a general visceral ptosis.

SPINDLE-CELL SARCOMA OF FOOT. AMPUTATION. RECOVERY. LUNG METASTASES. DEATH. AUTOPSY.

BY CHARLES L. SCUDDER, M.D., BOSTON,
Surgeon to the Massachusetts General Hospital, Boston, Mass.

A. R. L. A medical student about twenty-two years old.

Apr. 30, 1903, he fell down stairs, twisting the right foot. He was unable to walk on account of the sprain, and has used crutches since that time. The foot and ankle have been treated by massage, active and passive motion, and for a short time by immobilization of the ankle. He complained in July, 1903, of a dull, throbbing pain in the foot. He has gained in weight recently, and has been feeling particularly well.

Examination. — The right foot is swollen on the dorsum and inner side of the sole; the dorsum is edematous. There is some tenderness along the first metatarsal bone. The superficial veins are somewhat enlarged and distinct in the sole of the foot. Movements of the ankle are about normal. Enlarged lymphatic glands are to be felt in the groin.

First operation July 29, 1903. An incision into the sole of the foot evacuated a large quantity — of two or three ounces — of apple-tapioca-pudding-like material, mixed with blood. The cavity containing this material occupied the whole sole of the foot. The calcaneo-scaphoid joint was bared. The bones appeared intact. The wound was partly closed by suture, and drained by a wick of gauze. The material removed at this operation was examined and a report made of sarcoma.

Laboratory No. 37-116. July 29, 1913. *Pathological Report upon Material Removed from Sole of Foot.* — Microscopical examination showed bundles of closely-packed spindle cells running in all directions. The nuclei were small and oval, and the cytoplasm not well marked. There were many small and very thin-walled vessels.

Spindle-cell sarcoma.

(Signed) CHANNING C. SIMMONS, M.D.

Second operation, Aug. 5; the glands in the groin were removed. The pathological report stated that these glands were not malignant.

Third operation Aug. 8; the leg was amputated eight inches below the tuberosity of the tibia.

Laboratory No. 38-43. Aug. 7, 1903. *Report from Examination of Amputated Foot.* — Microscopical examination of the tissue from the internal malleolus showed in places closely packed bundles of spindle-shaped cells with oval nuclei. These cells merged in some parts of the section into loose myxomatous tissue, largely necrotic. In other places the cells were nearly round in shape. The growth was intimately connected with the tendons and muscles, and was surrounded by inflammatory connective tissue. Examination of the nodules at the base and head of the metatarsal bones showed the same type of cells in varying proportion, but largely necrotic. The periosteum was normal. The growth apparently originated from the muscles and tendons.

Diagnosis: Spindle-cell sarcoma.

(Signed) CHANNING SIMMONS, M. D.

The boy recovered well, the stump healed satisfactorily, and he went back to the Medical School, and in the fall was planning to get an artificial leg. He caught cold during November, 1903, and had a severe cough which required the services of a physician. He entered the hospital Dec. 26 with evidences of an intrathoracic lesion. He died Dec. 30, 1903.

An autopsy was had and it was found that he died from sarcomatous metastases in the lungs.

Partial report of final autopsy by Dr. Jones of Lowell, Mass. — Left lung greatly enlarged, extending beyond the median line, crowding the right lung, pushing the heart forward to the median line, and pushing the diaphragm markedly downward.

The tissue of the lung had lost any distinctive appearance, and was replaced by soft white masses the size of a hazel nut, surrounded by a softer semi-gelatinous substance.

Distributed through these areas were dark-colored clots of blood the size of an ordinary white bean, slightly larger.

The left pleura was adherent to the parietes and the diaphragm by firm adhesions.

The right lung was much less diseased, but contained masses similar to those in the left lung. The tissues were much firmer in texture than those of the left side.

Report from the pathological laboratory upon a specimen of lung tissue forwarded from the autopsy. — A microscopical section of the lung was furnished by Dr. Jones and showed spindle-cell sarcoma.

(Signed) DR. J. H. WRIGHT.

This case of spindle-cell sarcoma, originating in the soft parts of the sole of the foot, is extremely interesting, because it has been possible to follow the disease from its apparent beginning until death. It was the appearance of this patient at my clinic at the Massachusetts General Hospital last year which suggested the study of the relative malignancy of the sarcomata of the long bones.[1] At the time that the boy was admitted to the service, it was thought that the disease originated in the bones of the metatarsus. Subsequent examination has proved that the origin of the disease was in the soft parts next the bone. The very great malignancy of this spindle-cell sarcoma is evident. From the initial sign of the spraining of the foot to the time of the boy's death, there were only eight months. The question arose in connection with this case: At what point is it best to amputate? Amputation was done at about eight inches below the tubercle of the tibia. It was thought that if metastases had already taken place, a higher amputation would be of no advantage, and certainly if metastases had not taken place, a higher amputation would probably not have availed against metastases. I believe that exploratory incision into malignant growths, whether sarcoma or cancer, is unwise. There are cases recorded in which it would seem that the exploratory incision was the occasion of subsequent metastases. In this particular instance the question may very properly be raised: Did the incision into the sole of the foot, with subsequent curetting and laceration of veins, contribute in any way to the metastases? Certainly, a very thorough examination of the body of any individual with sarcoma of the extremities should be made, to determine, if possible, the existence of metastases before any radical operation is attempted.

Clinical Department.

BOSTON CITY HOSPITAL CLINICAL MEETING.

APRIL, 1904.

DR. F. B. MALLORY in the chair. DR. L. R. G. CRANDON, secretary.

There were sixty in attendance, and cases and reports were presented as follows:

I. STRANGULATED FEMORAL HERNIA, RELIEVED BY ABDOMINAL OPERATION. II. REYNAUD'S DISEASE; GANGRENE OF FOREARM.

BY J. B. BLAKE, M.D.

CASE I. N. H., female, thirty-five, married, entered Boston City Hospital Mar. 14, 1904.

Family history, negative. In Boston City Hospital several years ago for same trouble. No operation. Seven children; no miscarriages.

Two days ago, severe pain in abdomen. Vomiting and abdominal tenderness to marked degree. Bowels constipated. No jaundice. General examination negative. Locally a small mass in left groin below Poupart's ligament; freely movable, not painful, no impulse; marked tenderness and spasm in left lower abdomen.

Mar. 14, 1904, operation, Dr. Blake.

Abdominal incision, four inches long, in median line below umbilicus. Intestines dilated and reddened. Fluid in peritoneal cavity. Knuckle of gut caught in femoral canal. General traction failed to relieve this, so ordinary operation for strangulated femoral hernia was done. On opening sac, considerable fluid escaped. About three inches of dark purplish gut found. No omentum. Stricture of gut removed by incision up towards abdomen. Color and peristalsis returned under hot salt solution, and gut was returned to abdomen, resection being unnecessary. Owing to patient's condition radical operation for cure of hernia not attempted. Skin closed with silkworm gut. Small wick through femoral canal. Abdominal incision closed with silkworm gut. One wick down in pelvis, brought out at lower end of wound. Corrosive dressing. Bandage and swathe. Shock, enema.

Mar. 18. Patient made only fair recovery from ether. Moderate shock. Temperature normal. Now fairly comfortable. Bowels move well with enemata and calomel. Wicks removed and replaced to-day. Comparatively slight discharge. Mar. 22. Temperature normal. Full diet. Mar. 26. Some redness about femoral wound now going. Sinuses closing. Temperature normal. Bowels move well. Apr. 14. General condition has steadily improved. Patient up and about. Apr. 22. Wounds practically healed. Swathe. Discharged relieved.

Pathological report: No organism in smear from peritoneal fluid.

Urine: High; acid; 1,026. Mar. 14, 1904. Albumin, $\frac{1}{8}$%; sugar and bile, 0; sediment. Few free blood corpuscles; few hyaline and finely granular casts. Occasional leucocyte; few epithelial cells.

CASE II. I. B., female, thirty-eight years old, entered hospital on Apr. 10, 1904.

Family history, negative. Rheumatism ten years ago. Typhoid pneumonia two years ago. For past twenty-seven years fingers have been numb and white at times.

Six days ago, slight injury to hand while working. Hand painful next day. Three days ago fingers became discolored and black. Line of discoloration has gradually moved up arm. Very painful and tender. Unable to sleep for past three nights. Three days ago struck left hip against door and now has blackened tender area over site of injury.

Well developed and nourished. Tongue dry and coated. No glands felt. Heart and lungs negative. Abdomen negative; knee jerks normal. Gangrene of right thumb and first three fingers extending two thirds way to elbow. Veins injected.

Apr. 18. Requires morphine for pain. Line of demarcation forming about middle of forearm. Fingers dry and parchment-like. Blood culture shows moderate number of streptococci in blood. Apr. 27. Operation. Amputation. Dr. Blake. Esmark. Ether. Amputation one and one-half inches above demarcation line. Muscles grayish in places and not healthy looking. Very little bleeding. Skin sutured with silkworm gut. Rubber dam wick each end incision. May 1. Dressed twice since operation. Some bloody serum pressed out of stump. Clean. Temperature slightly elevated after operation. Dropped to normal after first dressing. May 5. Temperature normal. Comfortable. Dressed daily. *Urine:* Negative throughout.

Pathological report: Arterio-sclerosis. Clinical diagnosis, Reynaud's disease.

[1] See "A Study of Certain Cases of Sarcoma of the Long Bones from the Massachusetts General Hospital Clinic." BOSTON MEDICAL AND SURGICAL JOURNAL, June 2, 1904.

I. LARYNGOTOMY AND REMOVAL OF ONE CORD FOR BENIGN TUMOR OF LARYNX. II. OPERATION FOR "DROPPED KNUCKLE."

BY F. J. COTTON, M.D.

CASE I. The patient, a man of sixty, first showed dyspnea a fortnight before entrance to the hospital. He was sent in from the throat department as a case of either malignant or specific disease, having an immobile right cord and thickening about the posterior part of the cord without ulceration. Potassium iodide was tried but the dyspnea increased, coming on in night paroxysms so alarming that a preliminary tracheotomy was done on Mar. 2. For a day or two there was some inhalation of liquids and a consequent severe bronchitis. After waiting for this to subside, a median laryngotomy was done under ether with a sponge wrapped tracheal camula with the necessary later aid of adrenalin and cocain in the larynx. The pathologist's immediate report of the tissues removed was non-malignant, and the operation of partial laryngectomy which was expected was given up; the soft tissues of the whole right inner side were cut and gorged out and the larynx lightly packed. Except for a fleeting phlegmon of the neck on the second and third day recovery was uneventful. The tube was finally removed at eight days.

The patient now has a practically closed wound. He breathes normally and has a very tolerable though of course hoarse voice, which seems to be still improving. There is still some difficulty in swallowing semi-solids; solids and liquids cause no trouble.

CASE II. Man of forty-four; fractured the metacarpal bone of the first finger just behind its head, in a fall. He was treated as an out-patient, but after three weeks showed an unsatisfactory result. There was a marked "dropped knuckle" and an inability to flex the knuckle for more than a third the normal range — the limitation being apparently fibrous. An x-ray taken showed considerable displacement of the distal fragment up and forward toward the palm. Dr. Lothrop sent him in for operation, and on Mar. 31, under ether, an incision was made on the radial side of the metacarpal and an open osteotomy of the bone was performed, approximately along the line of fracture. The distal fragment was pried into place with a little trimming of bone and the finger put up in flexion. The wound was closed tight. The hand now shows no dropped knuckle at all. There is some excess of bone (callus?) at the site of fracture. Full flexion is possible; as to extension it is impossible to say as yet it should be good. The case is shown as an example of a class of cases that should be operated often; they seem trivial, but if good results are not obtained by ordinary treatment of these fractures, the disability is serious. They call for the best efforts we can give.

TABES DORSALIS, WITH SURGICAL COMPLICATIONS.

BY ABNER POST, M.D.

The patient entered the hospital with retention of urine. A catheter was easily passed and was tied in. It was said, by the patient, to occasion very severe pain which kept him awake and caused him to scream out. A careful examination showed that there was no mechanical difficulty with the water passage and disclosed the presence of a tabes which was evidenced by a loss of knee-jerks and by fixity of the pupils. During this examination attention was attracted to a long scar on the right side of the abdomen which the patient explained was made about two years before. He gave the following history: Between two and three years previous he had had abdominal symptoms, of which pain was the most marked, which raised a suspicion of gastric ulcer. That suspicion was later set aside and he was suspected of an appendicitis. The symptoms were somewhat indefinite, but so severe as to call for an exploratory operation. The appendix was found to be normal but was removed and the incision was extended so as to allow of the examination of the gall bladder and its vicinity. This further examination disclosed nothing abnormal. Paroxysmal pains had continued during these two years and persisted after his admission to the hospital. These pains were evidently the so-called crises of tabes and at the present time they occur with considerable frequency during the night and cause the patient to cry out so violently as to compel his isolation. An additional symptom in this case is the marked difficulty in emptying the rectum.

The patient was seen a little later by Dr. J. W. Courtney who confirmed the diagnosis of tabes and discovered in addition certain difficulties of speech which raised the suspicion of beginning general paralysis.

I. ACUTE APPENDICITIS, GANGRENE, PERFORATION, GENERAL PERITONITIS, RECOVERY. II. GENERAL SUPPURATIVE PERITONITIS, TOXEMIA, ADRENALIN, INFUSION, RECOVERY. III. INTESTINAL OBSTRUCTION FROM STRICTURE DUE TO ADENO-CARCINOMA, RESECTION OF COLON, RECOVERY. IV. PHLEBITIS OF THE VENA CAVA FOLLOWING TYPHOID. V. SUPPOSED TUBERCULOUS TUMOR OF THE PONS CEREBRI. VI. SENILE GANGRENE OF THE LEG, AMPUTATION OF THIGH, RECOVERY. VII. REYNAUD'S DISEASE.

BY H. W. CUSHING, M.D.

CASE I. The patient, a boy of nine, was convalescent from an extremely severe attack of appendicitis in which the onset was sudden. Gangrene, perforation and general peritonitis followed in four days. On the sixth day of the attack he was admitted to the hospital in a marked condition of toxemia. Immediate operation by Dr. Cushing. The intestine was found more or less adherent, with collections of pus between the loops throughout the abdomen and in the pelvis. The distal half of the appendix was gangrenous. The appendix was removed, the abdomen irrigated with salt solution and drained in the appendix region, the flanks, and the pelvis with gauze wicks. The patient left the operation table in a bad condition and for twelve days was very dangerously ill. For the first five days of this period a fatal result was constantly threatened. There was the "peritoneal" expression of the face, slight cyanosis, dark colored vomitus and more or less delirium for twelve days. On the eleventh day the temperature was 103° F., pulse 115, and there was a friction rub in the left lower chest. After the twelfth day the patient began to improve and gradually recovered. The drainage was gradually discontinued and the wound is now (eight weeks after operation) nearly healed. The boy is practically well.

The points in this case which attract attention are the following:

(1) The severe type of the disease, general suppurative peritonitis due to a mixed infection of streptococcus pyogenes, staphylococcus aureus, colon bacillus and another micro-organism not specified.

(2) The treatment: In this, the following things seem to have influenced the result;

The thorough irrigation of the abdomen with hot salt solution; thirty-three to thirty-six pints were used. Every pocket of pus which could be found among the adherent loops of intestine was gently opened during the irrigation, some

being found even in the splenic region, and the washing was continued till the return current from the external wound flowed out clear.

The gauze drainage was extensive. Next, the post-operative effect of subcutaneous infusion of adrenalin and salt solution. During the first few days following the operation when the patient's condition was so critical, the injections would be followed in one half to three quarters of an hour by a marked change. The skin would lose its cyanotic tinge and become flushed. The surface from cool and moist would become warm. The facial expression change from that of a patient "*in extremis*." The respiration became fuller and stronger. The pulse regular, stronger in volume and slower in rate. The injections[1] were repeated every twelve hours for twelve days and seem to have had an important influence on the recovery of the patient.

The theory on which it was used was that the action of the heart would be improved, that the toxins in the blood would be diluted and that the resulting diuresis would more rapidly excrete the products of the infection toxemia. The actual observation of the patient and a study of his "graphic" record seems to corroborate this idea.

DAY.	WHITE BLD. COUNT.	TEMP. A.M.	TEMP. P.M.	PULSE. A.M.	PULSE. P.M.	TREATMENT.
Operation	8,800	98.6		114		
1 day after		100.8–100.0		120–120		Delirium.
2 days "		98.6– 99.5		94–100		General appearance bad. "
3 " "	14,400	100.0–100.0		114–110		Adrenalin, 2 doses. "
4 " "	17,400	98.6– 99.0		120–110	" 2 "	"
5 " "	17,200	100.2–100.2		120–105	" 2 "	"
6 " "	15,400	100.0– 97.8		100–120	" 2 "	"
7 " "	15,000	98.6–100.2		86–108	" 2 "	"
8 " "		98.6– 99.8		80–113	" 2 "	"
9 " "	13,600	98.6–101.2		100–100	" 2 "	"
10 " "	10,000	100.2–101.2		100–100	" 2 "	"
11 " "	9,600	102.0–103.0		108–118	" 2 "	" Friction rub in l. lower left chest.
12 " "	7,800 and marked iodophilia reaction	101.5	101.0	110–110	" 2 "	"
13 days after	7,100	100.5–101.5		112–105	" 2 "	Delirium gone.
14 " "		98.6– 98.6		100–100	" 2 "	"
15 " "	10,000	99.2– 99.4		100–100	" omitted.	
19 " "	19,000	98.6– 98.6		96–100		
21 " "	20,000	99.0–100.0		82– 86		
23 " "	18,300	99.6–100.4		82– 88		
24 " "	17,000	99.6–100.0		100– 97		
26 " "	16,600	98.8– 98.8		96– 70		
28 " "		98.8– 99.5		86– 98		
32 " "	11,100	99.8– 99.4		100– 90		

CASE II. This case illustrates the effects of adrenalin infusion in repeated doses. This patient, a boy nine years old, was also a case of general suppurative peritonitis due to a perforation appendicitis with fecal concretion and gangrene. This case was not so acute as the one just described and the patient was not so dangerously ill for so long a period; and the peritoneal cavity was not so generally infected, but at one time his approach to a moribund condition was closer. The appendix was removed by Dr. George H. Monks. The abdomen was drained in the appendix region, the pelvis and the flanks by gauze strips through a median and a right iliac, oblique incision. The culture from the abdomen showed streptococcus pyogenes and colon bacillus. On the second day after the operation the patient almost died. The temperature fell to 95.5° F. Pulse was scarcely perceptible, intermittent and rapid. The face, especially the nose, the ears and finger tips were cyanotic. The pupils dilated. The respiration was shallow, the skin cool and moist. There was marked muscular relaxation and the appearance, the listlessness, of extreme exhaustion.

The patient at this time received 200 to 250 cc. of adrenalin and salt solution in the same manner and of the same strength as has been previously described. The effects were noted in one-half to three-quarter hour later. The respiration improved, the cyanotis disappeared, the skin regained its normal color, then became somewhat flushed. The pulse which at times could not be felt at the wrist began to increase in strength and volume and to become slower in rate. The temperature rose to 98. The patient then gradually reacted, was severely sick for a number of days and eventually recovered. The injections were repeated once and twice daily for seven days. The wound healing was delayed by a fecal fistula which closed spontaneously in twenty-three days.

In both these cases which were cases of marked infection the low leucocytosis at the time of operation attracts attention; 8,800 in the first and 7,400 in the second. This increased after operation to 17,000–18,000 in the first and 13,350 in the second. This record seems to correspond with the present idea of the relation of leucocytosis to acute infection. The graphic record is appended.

[1] The injection consisted of slowly injecting by gravity 200 to 250 cc. of the adrenalin and salt solution into the subcutaneous tissue of the front of the chest. The temperature of the solution was about 105° F. It took to inject this amount from 15 to 20 minutes. It was repeated every 12 hours. The solution was, R Adrenalin Chloride Sol. (Parke, Davis & Co. Adrenalin 1 pt. Normal Salt Sol. 1,000 parts c Chloretone 5%.) 10. cc. Salt Solution (BCH. R = Sodium Chloride [Na Cl] 9.0%. Calcium Chloride [Ca Cl$_2$] 0.30. Potassium Chloride [KCl] 0.10. Distilled Water [1,000.00 cc.]) 500 cc. This makes a 1 to 50,000 Solution of Adrenalin.

DAY.	WHITE COUNT.	TEMP. A.M.	TEMP. P.M.	PULSE. P.M.	PULSE. A.M.	TREATMENT.
Operation	7,400		99.4	115		
1 day	Collapse	97.2–	99.5	122	118	Adrenalin, 1 dose.
2 days		97.5	98.0	122	120	" 2 doses.
3 "		98.0	99.0	122	122	" 2 "
4 "		99.0–	99.2	118	100	" 1 dose.
5 "	13,800	99.0	99.0	100	125	" 1 "
6 "	8,200	98.6	99.0	98	100	" 2 doses.
7 "	11,400	98.6	98.6	80	92	" 1 dose.
8 "	10,000	98.8	99.0	100	102	" discontinued.
10 "	11,000	99.2	100.0	98	104	
11 "	10,000	99.4	100.0	112	110	
13 "	13,350	98.6	98.8	100		
16 "	10,700	98.6	98.6	88	92	
19 "	9,000	98.6	98.6	80	82	

The history of the case was as follows:

CASE III. This case was a man forty-eight years of age in whom the colon had been resected at its junction with the sigmoid flexure for intestinal obstruction due to cancer.

The history of the case was as follows: The patient was well till fifteen years ago. He then had an attack similar to the present one, but less severe. For ten to twelve years past there has been habitual constipation requiring the more or less constant use of cathartics.

Feb. 10, 1904. Severe intermittent cramp-like pains in the abdomen and vomiting occurred. For three days there was no dejection. The vomiting continued. The abdominal pain almost disappeared. Feb. 15. The patient entered the Boston City Hospital still vomiting. The ascending colon was apparently quite distended throughout its entire length forming a cylindrical tumor about four inches in diameter and extending from the liver to the iliac region. With the exception of a large scrotal hydrocele the physical examination was otherwise negative.

For a few days the patient under treatment was more comfortable. Then on Feb. 20, the vomiting became more frequent and fecal in character. The abdomen became distended and quite tympanitic. Ether was given and the abdomen explored to find and relieve the cause of the obstruction. A six-inch incision was made in the linea alba extending from the navel to the pubes. The small intestine, much distended, at once prolapsed through this opening. Exploration of the abdomen was so impeded by these distended prolapsed loops of intestine that an attempt was made to empty them. The gut was incised in two places and about 500 cc. of liquid feces evacuated. These intestinal incisions were then sutured. It was then possible to explore the abdomen, but not easily. It was still filled with distended intestine. Nothing was found except the distended ascending colon which was fully four inches in diameter. On account of the patient's condition becoming alarming and also the failure to find any cause of obstruction, an incision was made through the abdominal wall obliquely over the cecum. The cecum was sutured to the wound and opened. Two litres or more of liquid "pea-soup-like" feces were drained off. A rubber tube was now fastened into the colon wound by two superimposed "purse-string" sutures. As further exploration seemed likely to kill the patient the median incision was closed by "through and through" silkworm gut sutures and the operation ended.

There was marked shock, but the patient recovered from the ether and gradually reacted under treatment. The intestine gradually emptied itself through the tube in the colon into a bottle at the bedside and the obstruction was temporarily relieved.

Feb. 24. The tube was removed. The vomiting and pain had ceased. Mar. 7. The patient had regained strength and was in good general condition. The fecal fistula was still open. The median wound had healed. It was then noticed that unless the intestine was emptied by laxatives and enemata the symptoms of intestinal obstruction again recurred. It was therefore determined to operate again and to make an attempt to locate and relieve the obstruction which was now supposed to be a neoplasm situated in the wall of the intestine and filling its lumen. On account of the distention of the colon ending at the hepatic flexion the obstruction was thought to be probably located at this point, and on Apr. 13, after careful feeding and preparation, a second operation was done.

Under ether the abdomen was incised in the median line above the umbilicus and explored. Careful examination of the transverse colon and vicinity failed to find anything abnormal. Finally, after exploring the whole abdomen carefully without result, suddenly a small, hard, movable mass was by chance felt with difficulty in the left iliac region. An oblique incision four inches long was now made in the left lower quadrant of the abdomen and through this wound the mass was with difficulty protruded.

It proved to be a tight, narrow, annular stricture of the intestine at the juncture of the descending colon with the sigmoid flexure. With considerable difficulty the growth was isolated by clamps and two inches of the intestine with its adjacent mesentery resected. No glands were found. The intestine was then closed by an "end to end" union. This was done by a "right angle," continuous, fine silk suture reinforced at one or two points by interrupted "Lembert" sutures. The abdominal wounds were sutured without drainage. The difficulty of the operation was much increased by the slight mobility of the growth and by a very thick, fat mesentery or meso-colon.

The operation lasted one and one-half hours. There was considerable shock. Examination of the tumor by the Pathological Department of the hospital showed the resected mass to be an adeno-carcinoma which had so occluded the lumen of the intestine as to leave only an opening 2 to 3 mm. in diameter.

After the first day following the operation the patient's condition steadily improved, and on the fifth the temperature and pulse reached normal and remained so. The highest temperature, 101.8, was on the night following the operation. The highest pulse rate, 120, was on the evening of the next day after the operation. The wounds healed by first intention.

There was a spontaneous, normal dejection on the seventh day after the operation. The artificial anus closed spontaneously on the eleventh day after the intestine was resected and the obstruction re-

moved. The fecal discharge from it ceased much earlier. The patient at the time of discharge from the hospital was apparently well.

The points in the case to which especial attention is directed are as follows:

(1) The importance of operating in such a case in two "sittings." If an attempt had been made to find and resect the intestine at the first operation the patient would have died of shock. The artificial anus relieved the obstruction, emptied the intestine; the patient had an opportunity to regain his strength and the second exploration was made with an empty intestine instead of with a semi-paralyzed one full of stagnant feces and ptomains.

(2) The multiple wounds of the abdomen. The two wounds in the median line overlap so that the resulting scar extends almost from the sternum to the pubes. Then there is the four-inch oblique incision in the left iliac region through which the colon was resected and the three-inch oblique one in the right iliac region which served for the temporary artificial anus. These at present are firmly healed and show no tendency to herniæ.

(3) The difficulty of making an extended exploration of the abdomen through a median incision, and also resecting an intestine through an incision in the left iliac region with a discharging fecal fistula in close proximity to these wounds without infecting the peritoneum.

(4) The rapidity with which the artificial anus healed as soon as the necessity for its presence ceased.

The resected portion of the colon containing the adeno-carcinoma was shown and also a microscopic section of the neoplasm, which was prepared by the Pathological Department under the direction of Dr. F. B. Mallory. The specimen showed the extreme narrowing of the intestinal lumen by the growth. The histological examination showed that the resection of the intestine had been made well beyond the limits of the disease.

CASE IV. A patient, a man forty-three years of age, a clerk by occupation, who was admitted to my service for a periphlebitis and varicose eczema of the left leg, with superficial ulcer. This condition was relieved by the usual treatment in two to three weeks. On examination a marked varicose condition of the veins of both lower extremities was found, and also an extreme dilatation of the superficial veins of the abdomen, especially in the lower half. The patient stated that this condition had been present for nine years, and that the distention of the superficial veins was first noticed near the groin. That it had appeared here before the varices of the legs were noticed. A thorough physical examination failed to show any cause for such extensive venous obstruction. The examination of the chest and abdomen was negative and no cause for this extensive superficial venous dilatation was suggested till attention was called to an attack of typhoid fever thirteen years previous, which was complicated by a phlebitis of the lower portion of the vena cava causing obstruction to the venous circulation below that point, and the subsequent development of the collateral superficial venous circulation of the abdomen and the dilated veins of both lower extremities. Dr. George G. Sears, who first called attention to this diagnosis, commented on its great rarity, and showed a patient from his service convalescent from typhoid, who apparently illustrated this condition of abdominal phlebitis in an acute stage. The diagnosis could not be so definitely made in this case as in my patient, in that the cord-like vein was not actually felt and the patient was not ill so long; but it is difficult to explain the clinical picture presented by any other hypothesis.

CASE V. The patient, a girl, nineteen years old, presented the following history: When a child she fell, striking her head in the frontal region. Her history is otherwise negative till two years ago, when her present illness began.

The first symptom noted was intermittent headache which has persisted. Next appeared vomiting. First, eighteen months ago, now a marked symptom. One year ago trouble with vision caused her to visit the Massachusetts Eye and Ear Infirmary and for the past nine months she has worn glasses. Five months ago appeared difficulty in writing, in articulation, facial paralysis, and loss of vision of the left eye; one month ago she discontinued her occupation and the vision of the right eye was lost. Two weeks ago inco-ordination of the right eye was noted. Since then she has slowly grown worse. The urine shows nothing abnormal. The temperature and pulse are not especially affected. There is no loss of memory or intelligence. There is ptosis of the right eyelid. The left eye cannot be closed; the pupils in both are dilated and do not react to light or distance. Dr. Greenwood reports that the discs are affected in both eyes, are elevated, the left checked, the right showing beginning atrophy. There is deafness in the left ear. The left facial nerve is paralyzed. The tongue protrudes to the right. The patient talks slowly and articulation is difficult. The patella reflexes are normal. There is no ankle klonus, no Babinski or Kernig reaction. Some inco-ordination of the upper and lower extremities is present. The patient walks slowly and carefully. She staggers slightly. Examination of sensation of the trunk and extremities shows nothing abnormal. Vomiting at irregular intervals, vertigo and frontal headache are the present chief symptoms.

CASE VI. A case in which gangrene involving the foot and leg nearly to the knee had occurred.

The patient was a woman, age seventy-eight, who in January, 1904, noticed pain in the left foot. The foot soon became red and swollen. In two weeks the great toe became gangrenous. There was no history of trauma. The process of dry gangrene slowly extended until it reached nearly to the knee. Dr. Cushing amputated the limb at the junction of the middle and lower third of the thigh. The femoral artery at the point of section was very rigid and almost occluded. It was again resected one and one-half inches above the first point of division. The patient bore the operation well. There was very little shock following it. The stump healed by "first intention" without drainage under one dressing.

The dissected amputated limb was shown. The popliteal artery was occluded by a clot throughout its entire length. In its proximal portion the wall was so calcareous that it could scarcely be cut with a scalpel. The gangrenous area involved the foot and leg nearly to the knee. The black color of the surface was marked and the characteristic appearances of "dry" gangrene were well shown.

CASE VII. In connection with the case of senile gangrene of the leg a case was shown in which gangrene of the fingers resulting from Reynaud's disease had occurred. The third finger of the right hand was first affected, then the fifth and finally the fourth. This patient was a man, thirty-two years old, a Russian

Jew and a tailor by trade. There was no history of traumatism. There was marked pain, spasmodic, referred to the fingers. There was no pulsation in the radial artery at the wrist. The fingers were amputated. The arteries were found occluded by a thrombus. The pain, which had caused a great deal of discomfort to the patient, disappeared after the removal of the fingers. No cause for the radial obstruction has been discovered.

Another fact of interest is that the amputation wounds have healed. The phenomena of local asphyxia or syncope have not been noted in this case.

(To be continued.)

Medical Progress.

REPORT ON OBSTETRICS.

BY FRANK A. HIGGINS, M.D., BOSTON.

(Concluded from No. 9, p. 246.)

PREVENTION OF VISCERAL PROLAPSE AFTER PARTURITION.

GALLANT[13] believes that women should not, on getting up after the puerperium, suffer from muscular weakness, abdominal distention and ptosis, or uterine displacement and lacerated parts. To prevent displacement, he insists that his patients shall not be allowed to lie on the back, but must be kept on the side; he tampons the uterus for two or three weeks after the fundus is below the brim, and finally he fits a pessary to be worn from three to six months. For muscular weakness, he advises massage with passive and active exercises begun within a few days after labor, and in addition the patient is gotten out of bed as soon as possible, usually on the ninth day. For abdominal distention and ptosis, in addition to the above, he advocates a snug binder while in bed, and when the patient gets up, a specially fitted corset is worn, which is always applied while the patient is recumbent, and with the hips elevated.

COAGULATION OF BLOOD IN ECLAMPSIA.

Douglass[14] examined the blood of twenty-two eclamptic patients, and from his observations there is little difference in the coagulation time of healthy pregnant and puerperal women, and of eclampsia before and after delivery, and that there is nothing, as far as a study of the coagulability of the blood goes, to support the contention that the thrombi found in certain organs in fatal cases of eclampsia are due to an increased coagulability.

TREATMENT OF SEVERE POSTPARTUM HEMORRHAGE.

Fritsch[15] describes a method which he has used successfully for thirty years. In cases where the hemorrhage is due to atony of the uterus after expression of the placenta, he inserts his hand between the recti muscles, and grasping the uterus, he presses it forwards with both hands into a position of anteflexion over the symphysis. He then packs the space behind with cloths and towels, holding them tight with a roller bandage or binder around the abdomen, allowing it to remain in place for twelve hours. The body of the uterus rests on and above the symphysis, and its bleeding walls are pressed so firmly together that there is no opportunity for further hemorrhage. All the manipulations are extravaginal, and therefore require no preliminary disinfection. When the hemorrhage is due to lacerations, his method is to close the labia with one hand and push the vulva vigorously upward, exerting counter-pressure with the other hand on the fundus for half an hour.

THE DIMINISHING BIRTH-RATE AND WHAT IS INVOLVED BY IT.

In an address, Taylor[16] shows that in the birth-rate of the United Kingdom compared with that of other countries during the last twenty years, no other nation has sustained so great a loss. The marriage rate in the United Kingdom during the same period was found to be slowly rising, so that the "birth loss" was necessarily due to causes operating in the married life of the population, and not simply due to celibacy.

He says the cause may be traced to the deliberate prevention of conception, and he takes the view that this is not only destructive to the future life of the nation, but seriously injurious to those who practice it. The child reared in greater comfort or comparative luxury, with no brothers or sisters of similar age to rub off its angles and selfishness, was ill-prepared for the succeeding battle of life, and it was very frequently the child of the larger family and poorer parents who pushed his way in front of him and elbowed him to the wall.

Attention was drawn to the present condition and statistics of France where, for fifty years, the birth-rate had been falling until the population had become stationary, or even less than stationary. During the last fifty years criminality had trebled in France, that of children and young people being specially remarkable, and particularly so regarding crimes of lust and prostitution. It was pointed out that after half a century of trial with an increasingly limited population, France showed more and more a lowered and still falling moral average, a lessening virtue or strength, and an increasing national neurasthenia which seemed to crave and to need the help of constant stimulation in order to face the ordinary routine of life. The future danger of this under a democratic form of government was considered and insisted on. So long as the race progressed, the people could be trusted with the powers of government, but when decadence had been going on for years, and even ages, what could be the final outcome of such democracy but anarchy and confusion?

The birth loss in the United Kingdom must be due to causes operating in the married life of its

[13] American Medicine, May 14, 1904, p. 783.
[14] Brit. Med. Jour., Mar. 26, 1904, p. 711.
[15] Deutsche med. Woch., xxx, No. 1: Brit. Med. Jour., Mar. 5, 1904, p. 39, Epit.
[16] Brit. Med. Jour., v. 1, 1904, p. 427.

inhabitants. Therefore there was no reason to fear any high ideal of chastity or continence, and especially when this was associated with the care of those forces which go for the defence of the nation, and that child life which was its future hope. On the other hand, there was every reason to fear that debased ideal of married life, which was secretly and insidiously working for the ruin of the nation's power and for the destruction of its hope.

Insisting on the necessity of arousing the public conscience, and of aiming at a truer and braver conception of life, Taylor concluded by saying that he must confess when he heard of thoughtful men among the Boers in South Africa, military authorities in St. Petersburg, and Japanese in far Japan noticing and counting on their own racial increase, and comparing this with our own comparative stagnation, he would like, if he could, to sting his fellow countrymen into some proportionate sense of shame and duty.

RETROVERSION OF THE GRAVID UTERUS.

Herman[17] denies that retroversion of the gravid uterus brings with it dangers of abortion. He says when the uterus is large enough to become incarcerated under the sacral promontory, the patient has gone past the time for abortion. If retention of urine is allowed to go long unrelieved, so that cystitis and pyelitis are present, and the patient dying of uremia, abortion will probably precede death. If the uterus is roughly handled in violent attempts at replacement, such misusage may bring about abortion. But retroversion of the gravid uterus is not itself a cause of abortion, and causes no ill effects on the organ itself. The danger of retroversion of the gravid uterus comes in the fourth month from its causing retention of urine, and its only importance arises from its effect upon the bladder; its only dangers are those which directly or indirectly spring from retention of urine, as cystitis, peritonitis, rupture of bladder, pyelitis, and uremia. The one necessary treatment is the catheter, which, if used in time, is sufficient to relieve symptoms and prevent danger. Keep the bladder empty and the patient recumbent, and in over 90% of cases the uterus will right itself. If it does not, pregnancy will still go on, the uterus will enlarge, its anterior wall rising in the abdomen to accommodate the growing fetus. After a few days the bladder, urethra, and cervix uteri gradually accommodate themselves to their altered position, and retention of urine ceases.

He has never seen a case of retroversion of the gravid uterus that could not be pushed up. In such cases, after the bladder has been emptied, the uterus can be pushed up through the vagina, or under anesthesia with two fingers in the rectum. He sees no reason for abdominal section, as it can be beneficial only when the uterus is fixed by adhesions in a position for retroversion, a rare complication of pregnancy.

[17] Brit. Med. Jour., Apr. 16, 1904, p. 878.

ICHTHYOL IN PUERPERAL FEVER.

MacPherson[18] has used ichthyol in five cases of puerperal fever, three of which were desperate, and with excellent results in all. In these cases the uterus was first thoroughly irrigated with a bichloride (1 in 4,000) solution, and then packed with gauze soaked in equal parts of ichthyol and glycerine. In two of the cases, instead of ichthyol gauze, two drams of a 50% ichthyol watery solution were injected into the uterus. The improvement was very noticeable in each case. The irrigations and ichthyol applications were repeated in some of the cases, but the improvement which followed was attributed to the beneficial influences of ichthyol. He believes it is a valuable remedy.

He states the objection may be made that the packing had as much to do with the patient's improved condition as the ichthyol, but in two of the cases reported, no packing was used, and the drug was simply injected into the uterine cavity after free irrigation. One case of severe depression following the application of ichthyol to the cavity of the uterus has been reported, but no such untoward symptoms appeared in any of these cases. These patients were well stimulated with strychnine and ammonium carbonate at the time. Instead of any unpleasant symptoms arising, exactly the opposite were observed, the drug acting like a specific. Not only were the pulse and temperature reduced, rigors ceased, and discharge lessened, but patients had a feeling of well-being following the use of ichthyol, which was a pleasant contrast to the appearance of mental and physical suffering which one often witnesses in these cases.

PUERPERAL SEPSIS, NEW OPERATION FOR.

Chandler[19] recommends the following operation, which he says he has been performing for the past six years:

He makes an incision posteriorly to the cervix in the posterior vaginal wall, then passing a pair of long, blunt-pointed forceps, slightly curved, into the cervical canal, and up into the cavity of the uterus, he punctures the posterior wall of the uterus in the center, near the top of the uterus, and introducing with two fingers a piece or strip of iodoform gauze through the posterior vaginal opening previously made, he clasps the gauze with the forceps, drags it through the uterine wall and out through the vagina. He repeats this by puncturing the uterus on each side, but posteriorly and just above the middle of the body of the same, drawing the gauze through the openings as in the first.

He admits that it causes injury to the uterus, but says we do not hesitate to open other organs when infected, and experience in this operation is similar to operation in other parts. He claims that it is conservative, easily performed by the experienced, and that the mortality is lowered by the procedure.

[18] Med. Rec., Sept. 12, 1903, p. 414.
[19] N. Y. Med. Jour., June 4, 1904, p. 1088.

BIOCHEMISTRY OF PREGNANCY.

Some interesting experiments have been conducted in this field by Opitz.[20] By the injection of human placental tissue freed from blood, into animals (rabbits, goats, heifers and horses), he secured a serum, which he calls "syncytiolytic," and which he applied in several cases of eclampsia. It was found to display an antitoxic power against the assumed syncytiotoxins, which the author believes are circulating in the blood in eclampsia and form one of its etiological factors. This process he explains as follows: As soon as the maternal blood penetrates the trophoblasts, cells from the periphery of the ovum find their way into the maternal blood and are carried away into various organs. These deported cells are destroyed sooner or later, under the action of cytolysins formed in the blood of the mother, and their disintegrated particles have a toxic action as foreign bodies. To neutralize these, another substance is produced in the blood, the "antisyncytiotoxin." Opitz has succeeded in reproducing this process in animals by injection of placental tissue, and their serum acquires the properties of an antisyncytiotoxin. The results of the application of this serum in eclampsia have encouraged the author to advise the preparation of this serum in marketable quantities. It has proven absolutely harmless, and the details of its action will be given in a later communication.

ECLAMPSIA.

Hirst [21] believes strongly in the nephritic origin of eclampsia. He says it is not true that women with nephritis are not predisposed to eclampsia. The reasons why a comparatively small percentage of them actually arrive at the convulsive stage are that abortion, miscarriage and premature death of the fetus is the rule in the nephritis of gravid women, and that the signs of toxemia appear so early and are so marked as often to call for the artificial termination of pregnancy.

Among the premonitory signs of eclampsia, there is nothing comparable to the presence of albumin in considerable and increasing quantities in the filtered urine. It is true that a certain proportion of cases occur without precedent albuminuria, but their proportion is not nearly so large as one would infer from the report of sporadic cases. It is a clinical rule, with few exceptions, that albuminuria precedes the other signs of gestational toxemia, that the gravity of the woman's condition can be measured by the steady increase in the amount of albumin in spite of treatment, and that a steady and rapid increase of albumin is the most certain and constant premonitory sign of eclampsia that we possess at present.

The preventive treatment is based by every one on the theory of kidney inadequacy. It consists, as we all know, of a milk diet, diaphoresis, diuresis, and catharsis, with extra precautions against chilling the skin. The use of thyroid extract as proposed by Nicholson is still on trial. He does not believe in too rapid evacuation of the uterus, nor in cesarean section. He prefers to bring on labor slowly than resort to forced delivery, employing actively the elimination treatment. For convulsions, eliminate the poison and quiet the nervous irritability. It is generally agreed that normal salt injections, sweating and purgatives are the most reliable eliminants. Venesection may be classed among these, but he rarely uses it now. He thinks opium interferes with elimination, and a large dose may cause fatal poisoning in view of the inactivity of the kidneys. For the relief of arterial tension, he would use veratrum viride. He closes by urging the advantages of hospital treatment for such cases, as the mortality is less than one half what it is in private practice.

THYROID TREATMENT IN ECLAMPSIA.

The success of thyroid treatment in two cases reported confirms Nicholson's [22] statements in regard to the efficacy of thyroid extract in this affection. Baldovsky found that the convulsions abated under its influence, while it also regulated the eliminating functions of the kidneys. The urine increased in quantity, and the proportion of albumin rapidly diminished. He used narcotics in combination with it, and recommends this practice, as they keep the convulsions in check. His dosage was the same as Nicholson's, a .3 gm. tablet of thyroidin three or four times a day. The albumin nearly vanished in the first case within four hours of the second dose, which had been given two hours after the first one, dropping from more than 4 to a proportion of less than .5.

IMMEDIATE DELIVERY THE BEST TREATMENT IN ECLAMPSIA.

Bumm [23] says that his observations for the last two years have produced the conviction that in the treatment of the eclamptic soon after the first attack, while the pulse is good and the lungs intact, we shall obtain the best results as a rule by the immediate emptying of the uterus, and that through following this principle of treatment, the mortality, varying under other methods from 12% to 30%, may be reduced to 5%. A considerable proportion of his patients were brought to the hospital in coma, due in at least a third of the cases to the do-nothing policy and the old morphine therapy. If the eclamptic poisoning has already caused necrotic changes in the liver and kidneys and apoplectic effusion of the brain, or if in the course of long-enduring coma, severe lesion of the lungs has occurred, delivery can bring no help. For which reason he all the more insists upon immediate delivery before it is too late.

SPINAL PUNCTURE FOR ECLAMPTIC CONVULSIONS.

Helme [24] agrees that eclampsia is probably due to the presence of toxic material in the blood, and

[20] Medical News, Vol. 2, 1903, p. 892: Deut. med. Woch., No. 34, 1903.
[21] Therapeutic Gaz., Feb. 15, 1914, p. 74.
[22] Jour. Am. Med. Assn., Mar. 19, 1904, p. 809: Vratch. Gaz., xi, No. 1.
[23] American Medicine, July 25, 1903, p. 165: Münch. med. Woch. May 26, 1903.
[24] Brit. Med. Jour., May 14 1904, p. 1131.

that the first indication in treatment is to prevent accumulation and to assist elimination. He suggests, however, that eclampsia may be due to increased cerebrospinal tension, as the clinical aspect of a case indicates intracranial pressure, and convulsions increase the pressure by causing congestion of the cerebral vessels. For relief of this condition he suggests tapping the spinal canal in the lumbar region, and reports one successful case done under chloroform. A drachm and a half of cerebrospinal fluid escaped rapidly, as if under considerable pressure, and not drop by drop, as in health. He suggests that the treatment should be tried in suitable cases, and has only brought it up now because of the importance of the subject.

Reports of Societies.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

ANNUAL MEETING AT ATLANTIC CITY, NEW JERSEY, JUNE 2, 3 AND 4. 1904.

(Continued from No. 9, p. 248.)

FIRST DAY — (Continued).

FACIAL ASYMMETRY AS A CAUSE OF DEFORMITIES OF THE NASAL SEPTUM.

DR. HENRY L. SWAIN of New Haven, Conn., presented this paper as a sequel to or continuation of his paper read at the last annual meeting on "The Arch of the Palate," which last paper gave the results of a search for some possible relation between the shape of the skull and the arch of the palate, the whole study being prompted by his doubts as to the importance of the influence of adenoids, and the consequent nasal obstruction, upon the narrowing and arching of the palate.

The present paper was the result of much work in the way of measurements of the vertical and horizontal diameters of the posterior cloacae, and observations on the asymmetry of the two sides of the face and head in certain races and individuals, most of the work being done on Hawaiian and Flathead Indian skulls.

His conclusions, briefly, were that adenoid obstruction does not always and may never cause over-arching of the palate; that over-arching of the palate does not always produce bends of the septum; that over-arched palates and bent septa often occur together, and each is more frequent in skulls which are leptoprosopic; that leptoprosopic skulls and faces almost never exist in a marked degree without some distortion or over-arching of the palate and changes in the nasal cavity; that in a young child about to develop into marked leptoprosopia, pronounced nasal stoppage by adenoids cannot fail to *add* to the degree of deformity; that if the first teeth are removed early and the dental arch disturbed, then the palate will move easily, become narrowed and pointed in its own arch; and that the whole tendency is more often inherited than acquired.

INTRATRACHEAL INJECTIONS.

DR. THOMAS HUBBARD of Toledo, O., read a paper with the above title, awarding the claim of priority to Botey of Barcelona for putting the method upon a practical basis, although much had been done by others before Botey, notably Dr. Howard Green of New York. After detailing the history of the development of the procedure, the author spoke of the technique and the indications for its use. The intratracheal injections must not be used in the acute hyperemic stage of any inflammation, but must be withheld until the acute symptoms have subsided and the general systemic conditions are favorable to recovery, *e. g.*, in convalescence from acute bronchitis, taking the place of the usually administered "stimulating expectorants," and thus also relieving the gastro-intestinal tract of the disturbing influence of cough mixtures in syrups "*ad nauseam.*" The idea of treatment is essentially local; absorption for systemic medication is not the object of the method at all. He mentioned oil as the best menstruum, and the best medicaments to be used are guaiacol and menthol, in 1 to 3% solutions. In chronic bronchitis, bronchial asthma, bronchiectasis, fetid bronchitis, and in tuberculosis, the injections are very useful, but of course not to be urged to the exclusion of general treatment, only as valuable adjuvants. The injections are made by means of various cannulæ and tracheal syringes, and the utmost care must be used not to touch the epiglottis; if that is avoided, the injections are well tolerated by most patients. If possible, they should be made with the aid of a laryngeal mirror.

THE COMPENSATORY ACTION OF CERTAIN OF THE LARYNGEAL MUSCLES SEEN IN CASES OF VOCAL DISABILITY.

DR. CLARENCE C. RICE of New York read this paper, and gave many interesting facts about the results, in young voices, of overuse, or misuse, of some muscles of the larynx by faulty methods of instruction in singing, and the compensatory action of other muscles in doing the work of the damaged ones. His results may be stated in summary as follows:

(1) There exists throughout the entire muscular system of the body the intention and habit of one group to render assistance to any other group of muscles which may be temporarily or permanently inefficient.

(2) That such compensatory service is more readily appreciated in the larynx than elsewhere, because its technique may be observed with the laryngeal mirror.

(3) That the weaker of the laryngeal muscles are very easily fatigued by too rapid training or by over training, and that it is the habit of the stronger muscles immediately to offer their assistance.

(4) That although this compensatory action is wonderful from a physiological point of view, it is unfortunately accomplished at the expense of any great success in singing.

SEQUEL OF THE CASE OF LARYNGEAL PERICHONDRITIS AFTER TYPHOID, REPORTED TO THE ASSOCIATION IN MAY, 1903.

DR. EMIL MAYER of New York reported the above case in full at the last annual meeting, at which time the patient was wearing an intubation tube, which had been put into the larynx after a previous emergency tracheotomy.

With the tube in place the patient had made a trip to Europe, and after four months' continuous wearing it was removed; a few days later there was some dyspnea, and a small tube was inserted and left in for one week and then removed. Since then nine months have elapsed with no dyspnea, no discomfort, full return of voice, though of deeper pitch than before, and in all respects a return to normal conditions in the larynx. The author believes this to be the first case of the kind cured by intubation.

DISCUSSION OF NEUROSES OF THE UPPER AIR TRACT, EXCLUSIVE OF THOSE DUE TO DIPHTHERIA AND TO ORGANIC DISEASE.

"Neuroses of the Nose," by DR. G. HUDSON MAKUEN, Philadelphia; "Neuroses of the Pharynx,"

by DR. F. E. HOPKINS, Springfield; "Neuroses of the Larynx," by DR. EMIL MAYER, New York.

NEUROSES OF THE NOSE.

DR. MAKUEN presented this paper in the discussion, dividing the neuroses into two classes, the sensory and the reflex, giving a full list of the usual well-known conditions included under each class.

In regard to the second class the author expressed himself as somewhat skeptical, and felt that many rhinologists had perhaps "found what they most desired to find" in very many cases. But he still felt that there were some undoubted cases of reflex symptoms due to nasal irritation, and thought that the operative measures suggested for their cure were such as to add to the comfort and happiness of the patient in other ways, even if they did not cure the neuroses. After speaking of the commonly described "reflex arc" and its action, he said that a "pathological reflex always presupposes one of two things: either a disturbance in some portion of the reflex arc, or some unusual peripheral irritation; and a disturbance in the reflex arc renders the nervous system unstable, a condition known as hysteria, or as neurasthenia." He then emphasized the fact that, while a peripheral irritation in the nose may be the origin of a pathological reflex, we must keep in mind the fact that sooner or later we have to deal with an unstable nervous system.

The reflex neuroses of undoubted nasal origin he stated as sneezing, cough, spasm of the glottis and asthma, the most important being cough and asthma.

NEUROSES OF THE PHARYNX.

Dr. F. E. HOPKINS of Springfield read this paper, classifying the neuroses as: Abnormalities of sensation, neuralgia, reflex neuroses, spasmodic disturbances, vascular neuroses. He discussed anesthesia, hyperesthesia and paresthesia, and referred to that rare condition, chorea pharyngis, citing Lambert Lacke's typical case, published (*Laryngoscope*) in June, 1898.

He noted that nearly all the patients exhibiting these neuroses are neurasthenic, and while advising some treatment of the local lesions when found, felt that most reliance must be placed upon treatment of the general health.

NEUROSES OF THE LARYNX.

DR. EMIL MAYER of New York read this paper classifying the neuroses under the following heads:

(1) Motor disturbances of a hyperkinetic nature: The spasmodic affections of the larynx.
(2) Stammering.
(3) Status lymphaticus and sudden deaths.
(4) Motor paralyses.

The author merely mentioned, without discussion, the various sensory disturbances, such as anesthesia and hyperesthesia. Under the spasmodic affections he described at length laryngismus stridulus, congenital stridor, spasm of the glottis, chorea of the larynx, laryngeal nystagmus, laryngeal vertigo and dysphonia spastica. Stammering, the author claimed, to be entirely an acquired defect, not congenital nor hereditary, and its treatment a process of most careful, patient, painstaking *education*.

He spoke particularly of the "status lymphaticus" and its connection with the sudden death caused at times by spasm of the larynx, especially in explanation of the deaths from anesthesia in operations for adenoids, in which cases the "status lymphaticus" is practically always present. With his description of the various motor paralyses, he strongly advocated electricity in the treatment.

ESOPHAGOSCOPY AND BRONCHOSCOPY. KILLIAN'S OPERATION. REPORT OF TWO CASES.

DR. E. FLETCHER INGALS of Chicago, Ill., read this paper, speaking first of the recent development of the two procedures, as demonstrated by Killian in 1902. The author stated that, although "the ease with which foreign bodies can usually be removed from the trachea and often from a main bronchus, after tracheotomy, makes the latter operation preferable in most cases, when the diagnosis is in doubt or when the foreign body has passed into one of the divisions of a bronchus, bronchoscopy affords a means not only of diagnosis, but of successful operation, infinitely superior to transthoracic bronchotomy." In connection with any of these procedures, the location of the foreign body by the x-rays is, of course, desirable. The author detailed two interesting cases, illustrated by radiographs, one of an ornamental pin in the esophagus, and the other a long, straight pin in a branch of a bronchus, both successfully extracted by means of Killian's instruments.

(To be continued.)

Recent Literature.

Obstetric and Gynecologic Nursing. By EDWARD P. DAVIS, A.M., M.D., Professor of Obstetrics in the Jefferson Medical College and in the Philadelphia Polyclinic. 12mo. volume of 402 pages, fully illustrated. Second edition, thoroughly revised. Philadelphia, New York, London: W. B. Saunders & Company. 1904.

Besides the usual chapters on obstetric and gynecologic nursing, this edition of Dr. Davis' book contains chapters on the disorders of infancy, on cancer, on mental diseases complicating pelvic disorders, and on venereal or specific disease; the appendix having a useful dietary and an article on the preparation of surgical supplies.

The author has had the advantage of assistance by the chief nurses of the Jefferson Maternity and the Philadelphia Hospital and the dietician and directress of the Jefferson Medical College Hospital, so that although the subject is treated from the standpoint of the physician instructing nurses there are many practical suggestions which originated in the experience of the nurse instructor.

The nurse is told not only what to do under given conditions but also what the physician does and why he does it. Excellent advice is given as to the responsibilities which should not be assumed by the nurse, *e. g.*, "a vaginal injection before labor should never be given without the precise order of the doctor," and "the nurse is not to prescribe an infant's food."

The use of such terms as "sapremia" and "hypodermoclysis" call for a glossary, which the book does not have, and we think it would be an improvement if there were a chapter on the administration of anesthetics, as nurses are so frequently called on to anesthetize at least part of the time, both during labor and in gynecologic operations.

Not only nurses but recently graduated medical men could learn a great deal by a perusal of this book; it is to be highly recommended.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, SEPTEMBER 8, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

Subscription Terms: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 and 29 Bromfield Street, Boston, Mass.

SUPPLY AND DEMAND IN MEDICAL EDUCATION.

That a condition of equilibrium has not yet been reached in educational matters in this country is apparent. It has been the experience in most of our large institutions of learning that each year sees a greater number of students than the preceding, and, although there may be a certain fluctuation in the various departments, the tendency has constantly been toward increased numbers of matriculants. This is no doubt natural in a country, the resources of which are far from complete development, with the population of its large cities constantly augmenting. As a consequence of these facts the extension of university facilities has likewise developed with great rapidity in an attempt to keep pace with the increasing demand. It must, however, be recognized that the time is coming when a more definite equilibrium will be attained, and each succeeding year will see a smaller increase of students.

The tendency to medical education of late years has been to extend to a quite extraordinary degree the facilities for instruction, with the apparent expectation that the influx of students would go on increasing in like proportion. Whether or not this will be the case we do not predict, but it is evident that all over the country, following in a measure each other's example, our larger universities have extended the medical facilities to such a degree that opportunities for the completest medical education are prepared for a long time to come. The leading universities throughout the country are recognizing the position which medical instruction should take in the general university curriculum. Funds have been provided from various quarters and buildings erected, it sometimes appears, rather regardless of their actual need. The development of laboratory instruction has, in a measure, made this demand, but we are convinced that in all our larger medical centers there is at the present time laboratory opportunity which is frequently in excess of the demand.

It is evident that our medical schools must have students, and that the foundation of medical instruction lies with those now entering upon the study of this profession. It is, therefore, worth considering that, for example, out of last year's graduating class at Harvard about twenty men signified their intention of studying medicine, whereas about six times that number had decided upon the study of law. This showing is certainly somewhat surprising, especially in view of the widening scope of medical education and the very great competition in the practice of law. We are under the impression that the disparity between those taking up the law and medicine, certainly in this community, is increasing to the detriment of medicine. The reasons for this are no doubt subtle and far-reaching; we have no intention of discussing them at length at this time, but it behooves those interested in medical education to bear the facts in mind, and to realize that medical schools of the very first order are being developed in various parts of this country which are likely, with their present equipment, to fill the requirements for many years to come. In our enthusiasm for one department of learning we are apt to ignore the fact that many other departments and many other spheres of usefulness are likewise opening for men about beginning their careers, and that medicine must compete for its students as do other callings. In the meantime the balance between facilities for study and the students demanding such facilities must be maintained with skill and caution.

THE INFLUENCE OF HYSTEROPEXY ON FUTURE PREGNANCIES.

At the recent meeting of the French Congress of Gynecology the important question of the influence of hysteropexy on future pregnancies was lengthily discussed both by the members and in the report of Oui. Considering the large number of procedures employed for fixation of the uterus, statistics are of little avail, but by attentively studying the way in which abdominal or vaginal fixation acts one may arrive at some conclusions.

The first question to solve is the influence of anterior abdominal hysteropexy on the duration of pregnancy. The observations of Laroyenne, Condamin, Sinclair, Negri, Terrier, Pinard, Routier and LeFort show beyond all doubt that complete fixation of the uterus is perfectly compatible with the evolution of pregnancy. To what extent such or such procedure of fixation or of suture of the uterus to the anterior abdominal wall may be held responsible for the interruption of pregnancy is a question difficult to elucidate. Demelin believed that Olshausen's technique is the one most likely to produce miscarriage on account of the implantation of the sutures in the neighborhood of the vasculonervous pedicles, and the same may be said of the procedures with buried sutures on account of the greater solidity which they give to the uteroparietal adhesions. According to Oui the greatest danger to the evolution of pregnancy is in those cases where the fundus uteri is firmly fixed to the anterior abdominal wall.

As to the influence of hysteropexy on the presentation, the following figures are of interest. Out of ninety-four labors in patients having previously had a hysteropexy done, Demelin found ninety-four vertex presentations, three shoulder and one breech presentation, while Kustner reports three abnormal presentations out of a total of ninety cases.

These figures would appear to show that hysteropexy does not have any marked influence on the presentation, but on the other hand Pinard in 1899 observed one breech and three shoulder presentations out of six labors in patients who had had hysteropexy performed. The only astonishing thing is that faulty presentations are not more frequent after anterior fixation of the uterus when one recalls the importance of defective engagement of the fetus in the genesis of shoulder presentations. In some cases, the physiognomy of the labor is distinctly changed and delivery difficult.

Some statistics show the great frequency of normal labors. Schwartz has had seven patients who had nine pregnancies, seven of which went to term and were delivered spontaneously, while Richelot records two, Leguen three, Dickinson two and Jarman three normal labors after hysteropexy. Grandin reports two normal labors, but the uterus was again found retroflexed after the labors.

Besides rigidity of the cervix and the possible obstruction of the superior strait by the anterior abdominal wall or hypertrophied fundus uteri, one should remember that rupture of the uterus may occur, due both to the resistance met with by the fetus during its passage and the great thinness of the posterior uterine wall; three such instances were reported at the New York Obstetrical Society in 1901.

Generally speaking, it may be said that in the great majority of cases hysteropexy has no ill effect on the evolution or progress of the labor, but, as has been pointed out by Pinard, all abdominal hysteropexies do not give the same result and do not have the same consequences as far as future pregnancies and labors are concerned. Thus one sees certain operative procedures give rise to a large number of serious dystociae, while others, on the contrary, are quite inoffensive.

Certain procedures appear to possess inconveniences peculiar to them. The fixation of the fundus, especially when made near the pubic bone, is particularly bad because it places the uterus in an exaggerated anteversion, causes an extreme development of the posterior uterine parietes and may occasionally produce an obstruction of the superior strait by the anterior wall or the hypertrophied fundus uteri. It is also to be remarked that in those cases where the adhesions have remained solid, an indirect fixation by a pedicle formed by the adnexa has been known to produce a torsion of the gravid uterus on its longitudinal axis. From these facts it would appear indicated to place the uteroparietal sutures only in the anterior wall of the organ below the line of the tubes and not to include too much surface of the uterine wall.

As to vaginal hysteropexy it may be said that it frequently gives rise to pain and disturbances in the micturition. Vaginal fixation appears to have an unfavorable influence on pregnancy, and of ninety-five pregnancies followed to their end, Demelin observed nineteen miscarriages, or about 22%. These statistics were reported in 1896, and during the same year Kustner reported eighteen miscarriages out of a total of forty-eight pregnancies, making 37%, one of which was followed by retention of the placenta. It is quite true that since the above statistics have been published Dührssen has made public the marvellous record of seventy pregnancies occurring after his latest method of vaginal hysteropexy all of which, with one exception, ended favorably. Dührssen's statistics are the only ones that have ever been published with such an excellent showing, both as regards pregnancy and labor.

The prognosis of vaginal hysteropexy would

consequently appear distinctly less favorable as far as pregnancy is concerned when compared to abdominal fixation, and it is certain that in the former the anteversion and flexion are far more pronounced than in the latter condition. It is also quite certain that more serious cases of dystocia are met with in Germany, where vaginal hysteropexy has become the ordinary procedure.

The last statistics of Dührssen may perhaps induce some to adopt his technique, but it is probable that many operators will find the means of fixation too weak in this method, and the result may be that more solid fixation will be looked for, which is obtained in other techniques, and serious dystocia will ensue.

MEDICAL NOTES.

Sir John Simon's Estate. — The late Sir John Simon's estate, valued at upwards of $130,000, after certain annuities and a life interest are paid, reverts to St. Thomas's Hospital, London.

Paris Academy of Medicine. — Recent elections as foreign corresponding members of the Paris Academy of Medicine are Major Ronald Ross of Liverpool and Dr. Weir Mitchell of Philadelphia.

Arrival of Professor Wassermann of Berlin. — A recent arrival from Europe was Professor Wassermann of Berlin, whose reputation rests chiefly on his work on immunity. He is to deliver a certain number of lectures in St. Louis, and also to serve as one of the judges of the medical exhibit.

Death of William Weightman. — William Weightman, of the well-known firm of manufacturing chemists of Philadelphia, has recently died at the age of ninety. His interest lay chiefly in the manufacture of quinine and morphine, and it is stated that the foundation of his ultimately great fortune was laid by the sale of quinine to the Union and Southern armies during the Civil War.

Hospital Development. — The proposed new Bellevue Hospital, plans of which have been offered, bids fair to take second place if the design for the new hospital in Vienna, which has already been begun, be carried to completion. It is stated that there will be thirty-two separate sub-hospitals within the general enclosure, and eighteen separate pavilions, with 2300 beds for patients. *American Medicine* states that in the clinics for infectious disease the possibility of infection will be reduced to a minimum by the separation of the instructor and students from the patient by glass partitions. It is estimated that the cost will be eight million dollars.

Infrequency of Typhoid in Chicago. — According to the *Bulletin* of the Chicago Health Department, one of the most gratifying features, next to the continued low mortality among infants and children, is the infrequency of typhoid fever in that city. This disease always shows a seasonal increase, beginning in July and culminating in October. The increase has averaged for thirty years more than 63% in August over the rate of the first six months of the year, which would make the typhoid deaths for this month about 47. During the twenty-seven elapsed days there have been but 26 deaths from typhoid fever reported, and the total for the month is not likely to be more than 31 or 32. In August, 1903, there were 51 deaths from typhoid.

Prof. Oscar Hertwig, Director of Medicine and of Philosophy, Director of the Anatomico-Biological Institute and Member of the Academy of Sciences, according to the *British Medical Journal*, has been elected Rector of the University of Berlin for the coming year. Of the ninety-five rectors of that seat of learning, he is the sixteenth who has been chosen from the Faculty of Medicine. Professor Hertwig was Dean of that Faculty in 1894–95. The Dean of the Medical Faculty for 1904–05 is Prof. Johannes Orth, the successor of Rudolf Virchow in the Chair of Pathology.

Fourth Pan-American Medical Congress.— President Amador of the Republic of Panama has appointed the following officers of the Fourth Pan-American Medical Congress, to be held in Panama the first week in January, 1905:

Dr. Julio Yeaza, President; Dr. Manuel Coroalles, Vice-President; Dr. Jose E. Calvo, Secretary; Dr. Pedro de Obarrio, Treasurer. There will be but four sections: Surgery, Medicine, Hygiene and the Specialties, to which the following officers were appointed: Surgical Section: Maj. Louis LaGarde, President; Dr. E. B. Harrick, Secretary. Medical Section: Dr. Moritz Stern, President; Dr. Daniel R. Oduber, Secretary. Section on Hygiene: Col. W. C. Gorgas, President; Dr. Henry E. Carter, Secretary. Section on Specialties: Dr. W. Spratling, President; Dr. Charles A. Cooke, Secretary.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon Sept. 7, 1904, there were reported to the Board of Health of Boston

the following cases of acute infectious diseases: Diphtheria 43, scarlatina 10, typhoid fever 50, measles 3, smallpox 0.

STRIKE AT HARVARD MEDICAL SCHOOL BUILDINGS. — Owing to the common cause of the employment of a non-union mason, it is stated that a certain number of bricklayers have struck, who were at work on the new buildings of the Harvard Medical School. Owing to the dependence of other workmen upon these, temporary cessation of the work has been necessitated.

SMALLPOX IN NORTH ADAMS, MASS. — It is stated that the Board of Health of North Adams, Mass., has closed schools and other much frequented buildings because of the existence of smallpox in the city. Upwards of thirty-five cases have been reported and stringent measures have been taken looking to disinfection of mail matter.

A CENTENARIAN. — It is stated that Mrs. Betsy Dodge of Everett, Mass., has recently died at the age of one hundred and one years. For ten years past her general condition of health has been poor.

CHANGE IN COURSE FOR NURSES, MCLEAN HOSPITAL. — Beginning Oct. 1, 1904, there will be a change in the training school for women nurses, at the McLean Hospital, Waverley, Mass.

The length of the course will be increased from two to two and a half years, more instruction will be given and the nurse will have more time for study. She will be given courses in anatomy, physiology, hygiene, bacteriology, urinalysis, hydrotherapy, electrotherapy, massage, physical exercise, the dispensing of drugs, housekeeping, cookery, general nursing, and the nursing of cases of nervous and mental disease. Instruction will be given by means of textbooks, lectures and, where practicable, by demonstrations and actual work in the dispensary and the laboratories, as well as in the wards of the hospital.

During a half of the first school year the pupil will be given no more work on the wards than is necessary to put in practice the demonstrations received in the course of instruction, — perhaps two hours daily. For this time it will be practically a boarding school for the pupil nurse.

The change will necessitate the employment of more nurses and will be an additional expense to the hospital, notwithstanding a reduction of $5 in the monthly pay.

The length of the course for men nurses will continue for the present to be two years.

NEW YORK.

BEQUEST. — The new Amsterdam Eye and Ear Infirmary is reported to be the recipient of $10,000 by the will of the late William H. Crawford who died recently in New York.

ST. LOUIS MEDICAL REVIEW UNDER NEW EDITORSHIP. — Dr. Kenneth W. Millican has resigned his position as associate editor of the *New York Medical Journal*, which he has held since April, 1898, in order to assume the editorship and entire charge of the *St. Louis Medical Review*.

A NEW HOSPITAL. — A new hospital, to be known as the Brooklyn Samaritan Hospital, is shortly to be established at Fifteenth Street and Fourth Avenue in that borough. This institution is the outgrowth of the dispensary work of the Fifteenth Street Baptist Church, but it will be nonsectarian in character.

VEREINIGUNG ALTER DEUTSCHER STUDENTEN IN AMERIKA. — The union of Old German Students in America will give a "Commers" in honor of the German scientists who will visit the St. Louis Congress of art and science. Most of the guests are medical men. The date which has been fixed upon is Oct. 8, at the Arion Hall in New York.

INTERNATIONAL SOCIETY OF CHEMICAL INDUSTRY. — The first annual meeting in America of the International Society of Chemical Industry is being held this week, Sept. 7 to 12, at the Chemists' Club and Havemeyer Hall, Columbia University. The president of the society, Sir William Ramsay, K C B., the eminent English chemist, and a party of fourteen other noted foreign scientists arrived by the steamship "Baltic" on Sept. 1 to attend the meeting.

REPORT ON "SLOCUM" DISASTER. — On Aug. 31, the committee appointed by the mayor to administer the funds subscribed for the relief of the sufferers from the "Slocum" disaster of June 15 made a report of its work. The total contributions amounted to $124,205.80, and with the exception of $20,000 set apart for the future needs of those who were made to a greater or less degree dependent, the funds have now been expended. Among the expenditures was the sum of $1,264 for medical attendance and supplies furnished to 38 families. The list of dead is officially placed at 958. In all, 897 bodies were identified and 61 were buried without identification. There were represented on the "Slocum" on the day of the disaster 590 families, and

three fourths of these, or 437 families, were aided by the committee. The committee buried 705 persons belonging to 388 families, at an expense of $81,280. The report gives the first authentic information of the losses by various families. One hundred and twenty men lost their entire families. Of these, ten lost wife and three children; three, wife and four children, and one, wife and five children. There were twelve families in which orphan children were left, the number of orphans being 27 in all.

Official Interpreter at Bellevue Hospital. — Ermenegeldo Zordan, a professor in the University of Padua who is now in New York on a two years' leave of absence from the University, has been appointed official interpreter at Bellevue Hospital, an office that has been needed for many years. He is stated to be one of the most accomplished linguists who ever came to America, speaking English, German, Italian, Spanish, Polish, Yiddish and modern Greek as well as he does French, which is his native tongue. Professor Zordan has been engaged for seven years in writing a work on the literature and customs of the leading nations of the world, and, not being wealthy, finds it necessary to have some employment while pursuing his American studies.

August Mortality Report. — The mortality reported in the city during the month of August represents an annual death-rate of 18.63, as against 21.86 in July. This is an excellent showing for the season, though not equal to that of August, 1903, when the death-rate reached the low figure of 17.28. The corrected death-rate for August of this year, excluding non-residents and infants under one week old, is 17.84. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from diphtheria and croup decreased from 29.75 in July to 26.75 in August; the weekly average from scarlet fever, from 7.75 to 2.75; from measles, from 10.75 to 6; from whooping-cough, from 4.75 to 3.5; from epidemic cerebrospinal meningitis, from 26 to 20.75; from pneumonia, from 53.75 to 43.5; from broncho-pneumonia, from 46 to 43.75; from acute bronchitis, from 15.25 to 14; from pulmonary tuberculosis, from 152 to 144; from diarrheal diseases, from 467.25 to 318; from diarrheals in children under two years of age, from 427.25 to 286; and from Bright's disease and nephritis, from 113.5 to 97. Among the diseases which showed an increased mortality were the following: The weekly average of deaths from typhoid fever increased from 11.25 to 19.5; from cancer, from 48 to 49.75; and from organic heart diseases, from 75.25 to 87.75.

Obituary.

HENRY TUCK, M.D.

Dr. Henry Tuck of New York died at his summer home, Seabright, N. J., on Sept. 2, in the sixty-third year of his age, from Bright's disease. He was born at Barnstable, Mass., the son of a physician, and was graduated from the Harvard Medical School in 1867. Before taking his degree Dr. Tuck served as Acting Assistant Surgeon in the army in 1865, during the campaign preceding Lee's surrender at Appomattox. After his graduation he pursued his studies in Europe, and on his return practiced for ten years in Boston. Dr. Tuck was a well-known authority on life insurance. In 1878 he removed to New York, having been appointed one of the Medical Directors of the New York Life Insurance Company. In 1883 he was made second vice-president of that company, and in 1885, first vice-president, a position which he held up to the time of his death. He was twice married, his first wife being a daughter of William H. Beers, president of the New York Life Insurance Company, and his second, Miss Eleanor Hammond of Chestnut Hill, Mass., who, with several children, survives him.

Miscellany.

DR. WALTER REED AND THE PANAMA SANITARY OUTLOOK.

In the current number of the *Medical News* the editor remarks upon the sanitary outlook in Panama, and pays the following tribute to the late Dr. Walter Reed. After commenting in some detail upon the question of yellow fever and malaria, and the work which has led up to their etiological relationship to the mosquito, the editor closes as follows:

"All this looks simple enough now. The very favorable outlook, however, is due entirely to the work of one man, Dr. Walter Reed, who, in his quiet, unassuming way, accomplished as much for medicine as did Jenner, Lister or Pasteur. His greatest monument will undoubtedly be the fact that the canal at Panama will be finished without the awful loss of life that would otherwise be unavoidable. It is only proper and befitting his position as an American medical man that another and more formal monument to him should proclaim to admiring countrymen how much the fellow members of his profession appreciate the work that was so successfully accomplished by this compatriot whose untimely death cut off one of the most distinguished physicians of his generation, but whose memory will remain for all time as one of the glories of American medicine."

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 27, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Diarrheal Diseases.
New York . .	3,908,644	1,335	543	38.64	7.94	1.87	2.02	21.42
Chicago . . .	2,021,086	472	163	37.06	6.78	1.27	.64	21.60
Philadelphia	1,407,968	422	137	34.82	5.69	.95	1.90	14.92
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	200	72	37.50	2.00	1.50	2.00	20.50
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	120	—	39.98	3.33	1.67	11.66	19.16
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	70	27	28.60	4.29	2.86	2.86	18.59
Boston . . .	617,950	152	61	33.55	5.26	1.32	.66	21.05
Worcester . .	135,925	33	16	36.36	6.06	—	—	21.21
Fall River . .	119,349	45	23	53.32	4.44	—	2.22	33.33
Lowell . . .	104,402	47	26	44.66	—	4.25	2.13	37.65
Cambridge .	100,998	27	8	18.51	11.10	—	—	11.10
Lynn	73,875	15	2	20.20	6.67	—	—	6.67
Lawrence . .	72,348	26	15	53.84	11.54	—	3.85	42.30
Springfield .	72,020	—	—	—	—	—	—	—
Somerville .	70,413	21	7	23.81	—	4.76	9.52	9.52
New Bedford	68,863	45	28	44.44	4.44	—	2.22	40.00
Holyoke . . .	50,538	8	5	37.50	—	—	—	37.50
Brockton . .	46,801	7	4	—	—	—	—	—
Newton . . .	39,310	13	6	23.10	—	—	—	15.40
Haverhill . .	39,061	7	—	—	—	—	—	—
Malden . . .	37,205	10	4	20.00	—	—	10.00	—
Salem	37,188	12	3	33.33	16.67	—	—	16.67
Chelsea . .	36,499	10	5	—	—	—	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	18	5	50.00	11.10	—	—	38.88
Everett . . .	30,209	4	1	—	—	—	—	—
North Adams	29,201	5	2	20.00	—	—	—	20.00
Quincy . . .	26,798	7	4	28.60	—	—	—	—
Gloucester .	26,121	5	2	20.00	—	—	—	—
Waltham . .	25,797	8	1	—	—	—	—	—
Brookline . .	23,576	3	1	33.33	—	—	—	33.33
Pittsfield . .	22,870	5	3	20.00	—	—	—	20.00
Medford . . .	21,856	4	1	50.00	—	—	—	25.00
Chicopee . .	21,692	6	2	16.67	—	—	16.67	—
Northampton	20,314	7	4	—	—	—	—	—
Beverly . . .	15,807	4	4	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	2	1	—	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	5	3	40.00	—	—	—	20.00
Newburyport	14,478	4	0	—	—	—	—	—
Woburn . . .	14,315	4	2	50.00	—	—	—	25.00
Melrose . . .	13,819	—	—	—	—	—	—	—
Westfield . .	13,809	6	4	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	5	0	20.00	—	—	20.00	—
Revere . . .	13,609	4	2	—	—	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody . .	13,408	—	—	—	—	—	—	—
Gardner . . .	12,324	5	1	60.00	—	—	20.00	20.00
Southbridge .	11,716	2	1	100.00	—	—	—	100.00
Watertown .	11,575	1	0	—	—	—	—	—
Weymouth .	11,350	5	1	60.00	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,216; under five years of age, 1,200; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,179; acute lung diseases 198, consumption 344, scarlet fever 7, whooping cough 15, cerebrospinal meningitis 22, smallpox —, erysipelas 3, puerperal fever 8, measles 6, typhoid fever 74, diarrheal diseases 653, diphtheria and croup 37.

From whooping cough, New York 6, Chicago 2, Philadelphia 2, Baltimore 1, Pittsburg 4. From measles, New York 4, Philadelphia 1, Pittsburg 1. From scarlet fever, New York 2, Chicago 2, Baltimore 2, Pittsburg 1. From cerebrospinal meningitis, New York 17, Baltimore 1, Pittsburg 1, Worcester 2, Weymouth 1. From typhoid fever, New York 27, Chicago 8, Philadelphia 8, Baltimore 4, Pittsburg 14, Providence 2, Somerville 2, Boston 1, Fall River 1, Lowell 1, Lawrence 1, New Bedford 1, Malden 1, Chicopee 1, Marlborough 1, Gardner 1. From erysipelas, New York 1, Philadelphia 1, Worcester 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Aug. 13, the death-rate was 22.1. Deaths reported 6,482; acute diseases of the respiratory organs (London) 47, whooping cough 74, diphtheria 47, measles 122, smallpox 3, scarlet fever 28.

The death-rate ranged from 6.8 in South Shields, to 37.7 in Liverpool; London 21.4, West Ham 30.6, Brighton 12.8, Plymouth 13.7, Bristol 15.2, Leicester 17.4, Nottingham 28.1, Bolton 13.4, Manchester 23.6, Salford 28.0, Bradford 18.3, Leeds 23.9, Hull 31.2, Sheffield 21.2, Cardiff 16.6, Rhondda 31.1, Wigan 35.7, Merthyr Tydfil 22.2, Southampton 15.3.

METEOROLOGICAL RECORD.

For the week ending August 27, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer. Daily mean.	Thermometer. Daily mean.	Maximum.	Minimum.	Relative humidity. 8.00 A.M.	8.00 P.M.	Daily mean.	Direction of wind. 8.00 A.M.	8.00 P.M.	Velocity of wind. 8.00 A.M.	8.00 P.M.	We'th'r * 8.00 A.M.	8.00 P.M.	Rainfall in inches.
S. . 21	29.98	72	78	65	72	67	70	N W	E	16	3	C.	C.	.01
M. 22	30.06	72	81	62	90	81	87	S	S W	11	12	O.	C.	0
T. . 23	30.20	66	72	60	59	59	59	N	E	14	2	C.	C.	0
W . 24	30.20	70	81	58	69	79	74	W	S W	4	11	C.	C.	0
T. . 25	29.96	72	82	61	80	77	78	S W	S W	10	15	C.	C.	0
F. . 26	29.92	66	76	57	63	60	62	W	N	12	9	O.	C.	0
S. . 27	30.18	69	73	52	60	70	65	N W	S W	5	11	C.	C.	0
☞	30.07		78	59			71							.01

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING SEPTEMBER 3, 1904.

J. E. PAGE, past assistant surgeon. Detached from the "Montgomery" and ordered to the "Puritan," then home and granted leave for one month.

H. T. NELSON, JR., acting assistant surgeon. Ordered to duty at the Naval Hospital, Washington, D. C.

J. J. SNYDER, past assistant surgeon. Detached from the "Maine" and ordered to the "Kearsarge."

F. W. BRECK, pharmacist. Appointed a pharmacist from May 20, 1904.

J. FLINT, assistant surgeon. Detached from the Naval Hospital, Boston, Mass., and ordered home, and resignation as an assistant surgeon in the navy accepted, to take effect September 6, 1904.

N. T. MCLEAN, assistant surgeon. Detached from the Naval Recruiting Station, Buffalo, N. Y., and ordered to the Naval Hospital, New York, N. Y.

RECENT DEATH.

ELBRIDGE GERRY SIMONS, M.D., of Ripley, Chautauqua County, N. Y., was killed on September 1, at Glenville, a suburb of Cleveland, Ohio, by being struck by a Lake Shore freight train.

BOOKS AND PAMPHLETS RECEIVED.

The Meaning of a Modern Hospital. By W. Bruce Clarke, M.A., M. B. Oxon., F.R.C.S. New York, London and Bombay: Longmans, Green & Co. 1904.

On the Local Application of Solutions of Saline Purgatives to the Peritoneal Surfaces of the Intestine. By John Bruce MacCallum. Berkeley: The University Press. 1904.

University of California Publications. Physiology. On the Action of Saline Purgatives in Rabbits and the Counteraction of their Effect by Calcium (Second Communication). By John Bruce MacCallum.

Manual of Intragastric Technique. Practical Lessons in the Use of Apparatus for the Diagnosis and Treatment of Diseases of the Stomach. By George Herschell, M.D. Lond. Illustrated. London: Henry J. Glaisher. Chicago: W. T. Keener & Co.

The Health Scholarship Prize Essay on The Development and Anatomy of the Prostate Gland, together with an Account of its Injuries and Diseases and their Surgical Treatment. By W. G. Richardson, M.B., B.S., F.R.C.S. Illustrated. London: J. & A. Churchill. 1904.

Radiotherapy and Phototherapy, including Radium and High-Frequency Currents, Their Medical and Surgical Applications in Diagnosis and Treatment. For Students and Practitioners. By Charles Warrenne Allen, M.D., with the co-operation of Milton Franklin, M.D., and Samuel Stern, M.D. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1904.

The Medical Epitome Series. Surgery. A Manual for Students and Practitioners. By M. D'Arcy Magee, A.M., M.D., and Wallace Johnson, Ph.D., M.D. With an Appendix on X-ray Work in Surgery. By Edward O. Parker, A.M., M.D., Series edited by V. C. Pedersen, A.M., M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1904.

Original Articles.

OBSTRUCTIVE RENAL RETENTION WITH ANURIA, AND ITS TREATMENT.*

BY FRANCIS S. WATSON, M.D., BOSTON.

THIS communication deals with those forms of renal retention only with which anuria is associated, and which originate in complete closure of the ureter or of the outlet of the renal pelvis.

As used here, anuria is intended to denote the reduction of the urinary secretion to a few drops in the course of each twenty-four hours; that is to say, the anuria which is termed *absolute*.

The phenomena which are observed in the kidney when its urinary outflow is completely obstructed are as follows:

(1) Increased intrarenal pressure.

(2) Congestion and edema of the organ under the influence of which it becomes enlarged.

(3) Rapid diminution of the urinary secretion and change in its chemical character; the latter consisting in a marked reduction of its solid constituents.

After the obstruction has existed a few hours, the urinary secretion is almost absolutely suppressed, a few drops only being secreted in the course of each twenty-four hours. Owing to this latter fact, hypernephrosis in a marked degree is seldom seen in connection with complete, continuous obstruction. The enlargement of the organ is almost wholly due to congestion, and the urinary accumulation plays but a secondary part in its production.

(4) When the obstruction has existed for forty-eight hours or so, destructive changes begin in the renal epithelium and in the glomeruli. Once begun, they advance until the obstruction is removed. Their extent is therefore proportionate to the length of time during which the obstruction is present. If the latter lasts long enough, total destruction of the organ results.

(5) If the kidney is infected, the destructive changes take place more rapidly than when it is not infected.

(6) The degree of functional capability that is retained by an obstructed kidney cannot be determined by the thickness or thinness of the cortical substance that is found when operation is performed upon it, for the essential changes upon which the future of the kidney depends are histological in character. Thus there may be in one case a very thin layer of the secreting substance which has not been invaded by the destructive changes to such an extent as to prevent its performing useful service for many years after the renal obstruction has been relieved, while in another instance in which there is a comparatively large amount of the renal parenchyma left, its working capacity may have been practically destroyed by the changes which have taken place in it of a destructive nature.

(7) The only means of estimating the future functional capability of the obstructed kidney is by examination of the urine that comes from it after the re-establishment of the urinary secretion. This, however, cannot be determined from the urine passed *immediately* after the removal of the obstacle, for there are intervals of considerable length — sometimes from four to six months — during which the urine continues to be poor in solid constituents, and yet, at the end of this time, it may show such improvement as to indicate that the organ is doing useful work.

The above is a bare outline of the more important changes that take place in the kidney under these conditions. The essential things to be remembered in connection with them are: The longer the kidney remains obstructed, the greater is the extent of the injury done to it, and correspondingly, the greater is the patient's danger; that the destructive changes in the organ begin within a few hours after the establishment of the obstruction, and that they progress more rapidly when the kidney is infected than when it is not.

Anuria. — It is customary to assert that the anuria seen in connection with these cases does not occur if the kidney of the other side is normal, and that in order to have it produced, one or another of the following conditions must be present concomitantly: (1) Absence of the other kidney, or disease of it sufficiently serious to have destroyed or greatly injured its functional capability. (2) Simultaneous obstruction of the ureters of both kidneys or closure of the single channel made by their fusion, such as is seen in connection with certain renal anomalies.

In other words, that reflex influence is not capable of suppressing the urinary function of the other kidney when the latter is normal or but moderately diseased.

That this is not absolutely the fact is shown by two or three post-mortem observations in which the unobstructed kidney *was* found to be normal or very nearly so. Further evidence in support of the occurrence of reflex suppression under such circumstances is supplied by two clinical observations and by some recent experiments of Götzl.

The former consisted in having found the opposite kidney to all appearance normal, in a case in which it was cut down upon and incised after a primary operation on the other kidney, the second operation having been done because of the persistence of the anuria after the first one, and in another case in having drawn normal urine from the opposite kidney by a ureteral catheter after the re-establishment of the urinary secretion.

In the experimental work of Götzl, he succeeded in producing complete suppression of the urinary secretion of one kidney by increasing the intrarenal pressure in the other, in two of twelve dogs which were used in the experiments.

It is to be noted, however, that similar experiments performed by others have not yielded the same results as those of Götzl.

* Read before The Massachusetts Medical Society, June 7, 1904.

I have dwelt upon this feature of the subject because of its possible importance with relation to the surgical treatment of those cases in which the anuria persists in spite of the relief of the obstructed kidney afforded to it by a nephrotomy. For it suggests that there may be a reasonable chance of re-establishing the urinary secretion in such instances by exposing and incising the other kidney, should the anuria persist for twenty-four hours after the nephrotomy has been done on its fellow, when the former and if the former is normal or but moderately diseased and its function suppressed by reflex influence only. That these conditions are rare is undoubtedly true.

The most striking feature of obstructive anuria is the length of time it may last without giving rise to uremic symptoms and without causing death. These are the characteristics which serve to distinguish it from the anuria which occurs in connection with other conditions.

In order to determine various points in connection with this subject, I have collected and analyzed two hundred cases published by different writers. These cases are derived from the following sources:

Morris (Surgical Diseases of the Kidney and Ureter. 1902).

Schenck (Johns Hopkins Hospital Reports. 1902. Vol. x, p. 447).

Tenney (BOSTON MED. AND SURG. JOUR., Feb. 4, 1904).

In addition to the above are twenty-four cases, as follows:

Loumeau,	2 cases.	(Compte rendu de l'Association Francaise d'Urologie, 1896–97, p. 194.)
Pousson,	1 case	(Ibid., 1898, Vol. 3, p. 370.)
Vignard,	1 "	(Ibid., 1898, Vol. 3, p. 378.)
Albarran,	1 "	(Ibid., 1898, Vol. 3.)
Escat,	1 "	(Ibid., 1898.)
Chevalier,	1 "	(Ibid., 1896–97, p. 485.)
Begouin,	1 "	(Ibid., 1896–97, p. 187.)
Chevalier,	1 "	
Duret,	1 "	
Desnos,	1 "	(Ibid, cited by Begouin.)
Championniere,	1 "	
Bazy,	1 "	
Nicholich,	1 "	(Ibid, 1903–04.)
Cabot,	2 cases	(Annals of Surgery, 1903, October.)
Fairchild,	1 case	
McKay,	1 "	(Montreal Med. Jour., 1903, Vol. 32, p. 641.)
McArthur,	1 "	(Annals of Surgery, 1903, Vol. 37, p. 294.)
Bevan,	2 cases	(Annals of Surgery, April 5, 1903.)
Grohe,	1 case	(Arch. fur klin. Chir., 1902, Vol. 66, p. 178.)
Watson,	2 cases	(Jour. Cutan. and Gen.-Urin. Dis., Vol. 9, and present communications.)

Duration of Anuria. — One hundred and ten cases treated expectantly. Thirty recoveries. Eighty deaths.

In twenty of the cases in which recovery took place the duration of the anuria was as follows:

DAYS	CASES	
1	1	
3	1	
5 to 10	11	(The larger number of these cases had anuria from 5 to 7 days.)
11	1	
13	1	
14	2	
15	1	
15 plus	2	
	20	

The duration of the anuria in 42 fatal cases in which its length is stated was:

DAYS	CASES	
4	1	
5 to 15	25	(The larger number were between 5 and 8 days.)
15	2	
16 or more	14	(23 days was the longest period. There were remissions in a few of these cases.)

Ninety-five cases treated operatively. The duration of the anuria prior to operation was stated in 39 of these cases. Of these, 26 recovered and 13 died. In the 23 cases in which recovery followed operation, duration of anuria was:

DAYS	CASES
1	2
2	2
3	2
4	2
5	2
6	7
7–8–9 (1 each)	3
11	1
12	1
13	2
14–15 (1 each)	2
	26

Fatal cases 13. Duration of the anuria was:

DAYS	CASES
2	2
4–5 (1 each)	2
6–7 (2 ")	4
8–9 (1 ")	2
12	1
4	1
5	1
	13

"*Period of Tolerance.*" — The time after the beginning of the anuria during which the patient remains free from uremic symptoms, is called the "period of tolerance." Its duration was stated in 62 cases. In the larger number of these it was from four to seven days. In 4 it was twenty-four hours or less. In 2 it was two days, and in 14 it was from ten to sixteen days.

To what is to be ascribed the remarkable immunity to uremic intoxication displayed in some of these cases? The most plausible explanation seems to the writer to be that which is afforded by assuming it to be due to the so-called "*internal secretion*" of the kidney.

The theory with regard to this distinctive functional office of the kidney may be expressed briefly thus:

Beside the separation of urea and other excretory products from the blood, with which we know the kidney is concerned, it has another functional duty, namely, that of secreting certain principles of unknown nature, which are returned to the blood through the renal vein, and which have a value in preserving the general nutrition and health of the organism and which,moreover, inhibit in some degree the action of the uremic toxins.

In support of this theory may be cited the experiments of Vitzou recently published. One of a large number of similar ones made by him will serve as an illustration of all of them.

Vitzou removed both kidneys from two dogs, from the renal vein of which he had previously drawn a certain quantity of blood, in such a way as to have it keep sterile. This blood was defibrinated, filtered, and placed in sterile glass jars until it was required.

One of the dogs was allowed to die without interference. The second one was given subcutaneous injections of the blood of the renal vein prepared as above described. The first animal died in thirty-four hours after its kidneys had been removed, presenting characteristic uremic symptoms. The other dog lived for nearly seven days, or 130 hours longer than the one which had not received the injections of blood from the renal vein. Moreover, it was seen that the first appearance of the uremic symptoms could be delayed for a good many hours if the renal vein blood was injected in anticipation of their manifestation, and also that they could be made to cease and their reappearance delayed for a considerable interval if the subcutaneous injections were given as soon as they were manifested and repeated between that time and before the next manifestation occurred. In order that this theory may become applicable to the cases which we are considering, we must assume that the "internal secretion" has not been arrested by the influences which have led to the suppression of the urinary secretion, and that it continues to supply those elements which inhibit the action of the uremic toxins, or which increase the resistance of the organism to them.

Other points which may be noted with regard to the anuria and uremic manifestations are as follows:

If the kidney which is obstructed is already hydronephrotic, the life of the patient and the period of tolerance are prolonged as compared with the cases in which hydronephrosis is not present.

Another feature that should be remembered is, that during the period of tolerance, the patients are frequently to all appearance in good health, and that in some instances death has occurred suddenly without any uremic manifestations whatever, and not long after the beginning of the anuria. I can, however, find no instance in which this has been the case after a period of anuria of twenty-four hours or less.

No one can foresee at what moment uremia may occur, and Morris has well said that in these cases "uremia is always imminent."

Treatment. — In considering the treatment, we may separate the cases into two groups: (1) Those in which the symptoms are not sufficiently characteristic to enable us to recognize the nature of the trouble, or in which it is difficult to determine on which side the obstruction is located, and (2) Those in which the diagnosis can be made with reasonable or entire certainty.

Belonging to the first group are patients who have pain on both sides, or who have had it previously, but who do not have it when seen by the surgeon; or again, such as have pain on one side and tenderness or spasm of the abdominal muscles on the other, etc., etc.

Under these circumstances, if the patient's condition is such as to permit it, the use of the x-ray, the ureteral catheter and the cystoscope may render valuable service. Otherwise, the two latter are both unnecessary and useless in this class of cases.

In cases in which there has been pain on both sides, but in which it no longer exists when the patient is examined, and in which we are obliged to operate without delay, we should choose the side on which the pain was located last.

If we cannot determine which of the two sides is the seat of the trouble, it is better to take the chance of operating on the wrong one than not to operate at all; and if it is found that we have operated on the wrong side we should not hesitate immediately to expose and incise the other kidney.

In the other group of cases, viz., those in which there are *characteristic* symptoms, one or more of the following conditions are presented: Enlargement of the obstructed kidney, tenderness or pain of it; spasm of the abdominal muscles of that side, and, in the cases in which the kidney is infected, probably also chills or rigors, and nausea and vomiting.

Assuming that we have a case in which the diagnosis is reasonably assured, what is the treatment to be?

Apart from the surgical treatment, the following measures are available:

Subcutaneous injections of saline solution, with a view to delaying or mitigating uremic symptoms.

In cases of calculous obstruction, hot hip baths, and manipulation to aid the passage of the stone. The latter has often been successful.

Some surgeons advise the employment of anesthetics for the purpose of relaxing spasm of the ureter. Theoretically this is unsuitable in cases of anuria. Practically it has seemed to be beneficial in some of the cases reported.

When the obstruction is due to a kink of the ureter produced by movable kidney, the patient's hips should be raised, the abdomen relaxed, and the effort made to replace the organ in its normal position.

Operative treatment. — Other than the above methods of treatment, there are two courses that

may be pursued: (1) To treat the case expectantly. (2) To treat it operatively.

The decision as to which of these to adopt is not difficult in any case in which the diagnosis is reasonably clear. The evidence upon which this statement rests is: (1) The knowledge that we have of the changes that occur in the kidney when it is completely obstructed. These have been already detailed in the first part of this paper. (2) The results of clinical experience. The latter is shown by the analysis of the 200 cases which are the basis for some of the conclusions arrived at in the course of this study.

Of the total number of 205, there were 110 patients treated expectantly, and 95 who were subjected to operation.

The mortality of those treated expectantly was 72.7%. That of those treated operatively was 46.3%.

It was also seen that the longer the operation was delayed after the beginning of the anuria, the higher the death-rate became. Again, that a comparatively small number of the patients who had exhibited well marked uremic symptoms recovered under any form of treatment, and that of those who did survive under such circumstances far the larger part were treated operatively.

Further, it was found that there have been a few instances in which patients survived who had profound uremia at the time at which the operations were performed, and who had also had long periods of anuria. Such cases are reported by Chevalier, Duret, and Desnos. They serve to show that we should never refuse to operate even under such unfavorable conditions.

Other determining factors are these: We know that if the obstruction is not relieved, the patient will die in a comparatively short time. We know that death may occur suddenly and soon after the beginning of the anuria without the patient having had uremic symptoms. We know that uremic manifestations may occur at any moment during the anuria, and that once they have appeared, death follows with but few exceptions within three or four days at most.

No one is capable of foreseeing at what time these things may happen. No one can assert that the obstruction will be relieved spontaneously in any given case.

The fact that there have been some cases in which the obstruction has been relieved spontaneously after long periods of anuria and of tolerance, and that recovery has followed, does not justify us in delaying operation because of the hope or the expectation that the same experience will be repeated in any other case.

The conclusion, so far as the choice of treatment is concerned, is inevitable, and it is this: That in every case in which the obstruction has not been relieved by the end of the first forty-eight hours at most, operation should be performed. If uremic symptoms should appear before that time, operation should be done at once.

The delay of forty-eight hours is justified in some cases of calculous anuria, because we know that the destructive changes in the kidney will not have advanced to an important extent before that time; because very few patients have died after periods of anuria of such short duration as that, and finally, because the calculus may pass at any time within that time.

In other words, so long as the kidney is not suffering injury of consequence and there is a fair chance of the obstruction being relieved spontaneously, there is no serious objection to waiting, but at the expiration of this time, delay is no longer permissible. The line which separates the one from the other of these periods may be drawn at the end of the first forty-eight hours, at the furthest, from the beginning of the anuria.

Choice of Operation. — Having decided as to the kind of treatment to be adopted in a general sense, there remains to be considered the choice of the operative method.

In a few cases of calculous anuria the cystoscope has detected the stone projecting from the mouth of the ureter, and it has been removed from within the bladder by the finger or by instrument.

When a calculus is situated close to the lower end of the ureter, it may sometimes be dealt with advantageously from within the bladder also.

Occasionally a calculus is so large that it can be felt through the abdominal wall, and it can be better approached by a more direct route than that offered by lumbar nephrotomy.

The limits of such a communication as the present one do not permit me to enter into the question of locating calculus in the ureter, the relative frequency with which the different parts of the ureter are the seat of calculous impaction, etc. Moreover, these matters have been very fully dealt with by Israel, Tuffier, Morris and others abroad, and in this country by Schenck of Johns Hopkins, and by Dr. Tenney here, in two admirable articles already referred to.

I shall therefore confine myself to the consideration of some of the more general features connected with the choice of operative method.

One broad proposition underlies and applies to the surgical treatment of all these cases. It is this: The essential point by surgical intervention is the re-establishment of the urinary secretion by supplying a free avenue for the escape of the urine from the obstructed kidney by whatever operation will accomplish it most speedily and with the least shock.

There is no question that these requirements are best fulfilled by a quickly performed lumbar nephrotomy.

It goes without saying, that if at the same time the cause of the obstruction can be removed without thereby increasing the severity or prolonging the time of the operation to an important extent, it should be removed. Cases in which this can be done without too much risk, are those in which a calculus is impacted in the renal pelvis or in the upper third of the ureter, from which positions it may be removed usually without too much loss of time. Again, the time lost in

anchoring a movable kidney which has caused a kink of the ureter and its occlusion is usually not of enough consequence to deter us from doing it and thus preventing the recurrence of the trouble.

Of course, it is understood that failure to remove the obstacle at the time of doing the nephrotomy, makes the establishment of a renal fistula much more probable. The evils of even a permanent renal fistula depend in large measure upon the ability to have it properly cared for, the patient's surroundings, his occupation, etc. It is by no means an unmitigated evil when the above factors are favorable.

I have a patient at this moment who has worn a bottle attached to his back for ten years, and for the past year a second one as well. The urine of each kidney has been delivered into these receptacles respectively by tubes which are placed in the renal fistulæ in the two loins.

During the entire time he has been in excellent health; not a drop of urine leaks around the tubes; he soon became accustomed to them and suffers no discomfort whatever from their presence. He has been in active business all the while and no one has been aware that anything was the matter with him. The renal fistulæ have kept this patient not only alive but in perfectly good health all this time. To-day the kidney operated upon one year ago has a percentage of urea of from 1.60 to 1.90. That of the kidney operated upon ten years ago —1.30 to 1.70% of urea. The latter has not varied from the time of the operation, in the sense of diminishing the percentage of urea found to be present.

The safety of the patient lies primarily in relieving the obstructed kidney. His future comfort may be imperilled by failure to remove the obstacle, but his life may depend upon not attempting to do so in the first instance.

The nature of the operations done in the ninety cases was as follows:

	Cases	Deaths	Recoveries	Mortality
Lumbar Nephrotomy,	65	9	56	15.2%
Ureterotomy,	15	3	12	20.0%
Pyelotomy,	5			
Abdominal exploration and passage of calculus by manipulation,	2			
Exposure of kidney and incision of capsule,	3			
	90			

Immediate closure of the nephrotomy incision. — The temptation is strong to close the kidney incision immediately, when we are sure that the obstacle has been removed, and when the organ is not infected. It has been successfully done several times. But it should be remembered that it is the very fact of maintaining the opening in the loin, for a time at least, that allows the kidney to resume its function in whatever degree it is capable of doing. We know that this resumption is not immediate upon the removal of the obstacle, and, finally, it is possible, even in cases in which the obstacle has been removed, that we may invite a repetition of, or aid in maintaining, an abnormal degree of intrarenal pressure by immediate closure of the renal wound. On all these accounts it would seem wiser, therefore, to leave it open. In the instances in which the obstacle has been removed its healing will not be seriously prolonged by so doing.

If it is known that the patient has but one kidney, or that the function of the one which is on the side opposite to that which is obstructed is destroyed, this fact is a reason for operating sooner rather than later.

In this connection may be mentioned some of the cases of this sort which have been published:

Auvray. — Calculous anuria — destruction of the kidney of the other side by obliteration of the ureter. (Bull. et mem. de la Soc. Anat. de Paris. 1899, vol. 74, pp. 597–600.)

Loumeau. — Calculous anuria. Nephrectomy done on the other kidney one year previous. Patient refused operation, and died uremic on the 5th day. (Compte rendu de l'Assoc. Franc. d'Urologie. 1896–97, p. 194.)

McArthur. — Calculus removed from right kidney by nephrolithotomy. Nephrectomy done on same kidney later. Anuria. Nephrotomy upon the remaining kidney. Recovery. (Ann. of Surgery, Phila. 1903, xxxvii, pp. 294–296.)

Nicholich. — Calculous anuria. Nephrotomy on the 15th day. The kidney was tuberculous as well as obstructed. The other one had been removed for tuberculous disease some time before. Recovery followed the second operation. (Assoc. Francaise d'Urologie. 1903–04, vii, pp. 639–642.)

McKay. — Pyonephrosis of left kidney. Nephrectomy. Subsequent calculous anuria from obstruction of remaining kidney. Nephrotomy. Recovery. (Montreal Med. Jour., 1903, xxxii, pp. 641–648.)

Ferguson. — Nephrectomy. Anuria from blocking of other ureter. Nephrotomy, and finally suprapubic cystotomy. Recovery. (Jour. Amer. Med. Assoc., 1903, pp. 8–10.)

Chevalier and Mauclaire. — Anuria of four days in a patient having but one kidney. Nephrotomy. Recovery. (Assoc. Francaise d'Urologie. 1896–97, p. 485.)

Two other cases which have not been published have come within my personal knowledge. In both there was but one kidney. In both, the periods of anuria were comparatively short. They were thirty-eight hours and three days, respectively. Both patients recovered; one under expectant treatment, and one after nephrotomy and the removal of a calculus from the upper end of the ureter. In both cases nephrotomy had been done at some time previously upon the other kidney.

As has been said, speed in the performance of the operation is of the highest importance; often it will have the character of an emergency; and as we know, even such of the patients as do not show evidence of uremia or of being seriously ill, have all of them been accumulating toxic elements, and are not in condition to resist surgical operation well.

Any device, therefore, which will enable us to shorten the time of the operation is a most welcome addition.

I have derived the greatest assistance from the use of the "Kidney Operating Table" devised by Dr. J. H. Cunningham of Boston, in the performance of all lumbar renal operations. It is, I think, far the best means at our disposal for the purpose, and I take pleasure in commending it to your favorable notice. I have asked Dr. Cunningham to demonstrate it here this afternoon, and I will not anticipate what he will have to say about it himself.

BIBLIOGRAPHY.

The following 22 cases are taken from the tables of Schenck and of Tenney, to which references have already been given in the body of the article:

		Cases
Bardenheuer	1882	1
Bergmann	1887	1
Ceci	1897	1
Deaver	1902	1
Ferguson	1903	1
Hind	1894	1
Israel	1888, 1896	4
Kirkman	1889	1
Kadian	1894	1
Lagarosse	1892	1
Lucas		1
Legueu	1894, 1895, 1895	3
Medoza	1903	1
Morris		1
Morrison		1
Pousson	1894	1
Ralfe and Godlee	1889	1
		22
To these are to be added the 24 cases collected by the writer and quoted in the body of the paper		24
The rest of the series of 205 is made up of the 49 cases noted by Morris as being treated operatively, and 110 cases treated expectantly		49
Operative cases		95
Expectantly treated		110
Total		205

Albarran: Communication upon the renal function. (International Congress, Madrid, 1903.)
Bevan: (Annals of Surgery, 1903, Vol. 37, p. 575.)
Cabot: (Annals of Surgery, October, 1903.)
Israel: (Chir. Klin. der Nierenkr. Berlin, 1901.)
Merklen, Pierre: (1881 Paris Treatise.)
Albarran: (Renal Retention.—Assoc. Francaise d'Urologie, V. 1, 1896.)

DISCUSSION.

DR. BENJAMIN TENNEY of Boston said that he had had an opportunity of seeing two types of anuria in the same patient on whom he operated. Some of these attacks before the operation lasted for eighteen hours. Fifteen months after the ureteral calculus was removed, the patient slipped and fell in a sitting position. This was followed by considerable pain on the operated side, and one month later he was called to see the patient who had been working on her feet for several consecutive hours.

On examination a tender swelling the size of a child's head and movable was felt on the left side. Within an hour after lying down with hips elevated the swelling entirely disappeared, and the patient's bladder had been filled and emptied twice.

The earlier attacks were due to the presence of the calculus, and the last to a kink in the ureter, caused by the slipping down of a large kidney. A second operation may be necessary to keep the kidney up in place.

Dr. Tenney agreed with Dr. Watson that anuria was frequently connected with a mechanical obstruction. In all the cases which he has looked up in connection with the article to which Dr. Watson referred, there was evidence of such obstruction.

In the twenty-one cases of anuria which appeared in the combined tables of Dr. Schenck and Dr. Tenney, there was an operative mortality of 52%. Morris speaks of forty-nine cases operated upon with a mortality of 49%, and compares this with the mortality of 80% in cases not operated.

The speaker believes that draining the pelvis of the kidney through the loin added so little to the risk of an already grave condition that it was the only treatment to be considered where the anuria had lasted more than thirty-six hours.

DR. PAUL THORNDIKE of Boston: In the first part of his paper Dr. Watson called our attention to the well-known fact that if the renal outlet is partially occluded for a longer or shorter interval there results a hydronephrosis, while if the obstruction is complete and sudden the renal function practically ceases with equal suddenness and the organ begins to degenerate. If there be an infection as well, the destructive process is so much the more rapid.

Now if the renal function is so interfered with that the unobstructed kidney ceases to functionate (from reflex causes) we get a more or less complete anuria, and if operation upon the obstructed kidney fails to re-establish the renal secretion it is conceivable that a second operation upon the other (unobstructed) kidney might be indicated. This has never come within the range of my experience and I should like to ask Dr. Watson what degree of suppression of urine would indicate the necessity for such an operation and how long he would wait after the first operation before cutting down upon the second kidney?

I wish to add my word of commendation for Dr. Cunningham's table. It has several times enabled me to explore kidneys and remove stones from them without the delivery of the organ on to the loin, and that is something which I have rarely been able to accomplish before.

REMARKS UPON THE GENERAL PRINCIPLES OF MANAGEMENT OF PULMONARY TUBERCULOSIS.*

BY S. G. BONNEY, A.M., M.D., DENVER, COL.

DESPITE the vast interest attaching to the review of the tuberculosis problem, its present status must be regarded as somewhat unique in the diversity of opinion entertained by medical men concerning the rational management of the disease. This appears remarkable in view of the fact that the consensus of opinion among all qualified observers relates solely to the consideration of out-of-door life, rest, superalimentation and a suitable régime, as the all important factors. It is difficult to understand how there can exist such widely differing inter-

* Read before the American Climatological Association, Philadelphia, June 3, 1904.

pretations of the application of these basic principles, as to permit the resulting multiplicity of ideas and divergent methods of practice, where uniformity of thought and action reasonably might be anticipated. Yet there is being promulgated from numerous sources bearing the stamp of authority and conveying perfect honesty of purpose, the endorsement of several distinctive methods of treatment which appear unalterably opposed to each other. These differences pertain to the various constructions placed upon the relative value of the above mentioned essential principles. A more or less partisan appreciation of their comparative merits is developed by the immediate environment and special opportunities of the observers. Thus is to be explained the repudiation in some quarters of the advantages of climatic change for any case, and in others the advocacy of several totally differing localities for nearly all classes and conditions. In like manner is noticed the strenuous insistence by some upon a rigid disciplinary régime within a closed sanatorium, as applicable to all cases of consumption regardless of many vitally important considerations, and at the same time an equally unyielding adherence by others to the alleged superiority of the conditions rendered possible at home. Unfortunately the picture sometimes is painted in its most dismal colors by ardent opponents. The invalid, in the mournful contemplation of banishment to a distant clime, incarceration within the walls of an institution for consumptives, or seclusion upon his back porch, and perhaps in an unsightly yard, often may wonder which fate can possess the least terror.

It does not necessarily follow, that because one of these methods is rational in certain instances, that the others are necessarily inapplicable for other cases. Manifestly each has much of merit according to the individual conditions imposed, and through the exercise of an intelligent discrimination on the part of the medical adviser may be utilized for the material aid of an appropriate class.

Conceding that each case is a law unto itself and must be judged solely upon the intrinsic merits of its many component factors, is it not time that preconception of fixed ideas as to the management of consumption gives way to a just recognition of the valid and established claims of several methods. The application of the various principles of treatment to an individual constitutes a responsible trust, the satisfactory fulfilment of which can be afforded only through a sufficient appreciation of its true character.

It is not the most complete interpretation of a single element no matter how important that is to accomplish the best results, neither is it the most radical conception of several thoroughly accepted principles if at the obvious expense of remaining factors perhaps not so well recognized yet entirely pertinent to the invalid in question. The fullest measure of success in management is to be obtained only by the wisest possible grouping of all the favorable influences pertaining to the case itself. This imposes an obligation towards a painstaking regard for detail, necessitating a vast amount of study as to the special needs and requirements in each instance. This personal effort directed to the critical analysis of all the phases of each case, historical, physical, temperamental, financial, domestic, social, recreative, industrial, etc., is absolutely essential in order to afford not only a wise preliminary guidance, but also to facilitate subsequently the continued adaptation of the consumptive to a proper environment. Thoughtful study and alert vigilance must be maintained throughout the entire period of observation, in order to provide such mode of life and surroundings as are especially appropriate to changing conditions, and in harmony with the varying needs of the patient. This direct personal attention to detail constitutes the first cardinal feature in the management of pulmonary tuberculosis applicable alike to all climates and all methods.

The next consideration relates to the question of climatic change.

There should be no argument concerning the great value of such an influence in the treatment of consumption, provided there is instituted a proper selection of cases and a conjoined attention to mode of life. Desire to exploit the virtues of any particular climate herewith is disclaimed. Such practice as little becomes the medical residents of favorable localities as does the flaunting renunciation of climatic truths those who are pleased to indulge in such vagaries. May it not be asserted, however, that a consistent regard for the very principles upon which depend opposing claims necessarily carries with it an almost incontrovertible argument in favor of climatic change for a large number of cases. If out-of-door life constitutes a desirable feature of treatment at home, why is it not infinitely better when practiced in such localities as permit its more complete fulfilment? If fairly satisfactory results in early cases may be obtained by virtue of certain features of regimen without other beneficial influences, is it not reasonable to expect still better results and among a larger class of cases by means of the same watchful observation with the added opportunities for outdoor air, sunshine, warmth and dryness incident to favorable climates? It would appear that only in such localities could the fullest conception of a proper method of living satisfactorily be conducted.

It must be insisted, however, that there is something in climate distinctly and entirely apart from these factors of sunshine and outdoor air. Reference is made to the influence of altitude in wisely chosen cases, as producing vesicle dilatation, increase of hemoglobin and red blood corpuscles, and improvement in the vigor of the circulation involving digestive and nutritional changes of vast import. Aside from such considerations as the foregoing, may be mentioned the value of the psychic element involved in all changes of residence. This can react for good or evil according to the degree

of intelligence and sagacity displayed by the medical attendant. Admitting a proper selection of cases and a sufficient personal interest and effort on the part of the adviser to provide suitable environment, there may develop factors of no little value in the novelty of new surroundings, change of food, scenery, custom, companionship, the relief from cares and responsibilities of home and all the interest that attaches to a new country with its stir and energy. Can we afford, also, to entirely disregard the fact that certain climates exist where tuberculosis is very rarely indigenous in spite of the existence of some factors that reasonably might have been expected to produce an increase of native cases? Are there not offered to imported cases better opportunities to gain in the midst of these influences which have prevented the development of the disease in others than when exposed to the same conditions that have been conducive to its origin and spread?

This course of remark is not presented as a plea for health resorts, but merely as an appeal for an impartial consideration of the subject in the interests of the invalid alone. The contention simply is made, that while many cases may be expected to do well under proper supervision even if deprived of the advantages of climate, and that others, reference to which has been made in previous papers, are by no means appropriate for climatic change, yet there does remain another class entitled to receive it by virtue of every consideration, including the results of scientific research, of clinical observation and the instincts of humanity. It is hardly necessary at this time to define in detail the character of cases embraced in this class. A somewhat broad and comprehensive grouping of those for whom some climatic change is justly indicated includes,

First: All those with moderate infection who are not prevented from leaving home by financial embarrassment or other equally cogent reasons.

Second: Those in a similar physical condition, though with but a meagre monthly allowance, provided sufficient accurate information is obtained in advance concerning suitable accommodations at an expense within their limits.

Third: Those admittedly dependent upon their own efforts for support, but, nevertheless, with such slight pulmonary involvement as to permit the performance of out-of-door work in some favorable region where employment may be assured.

Fourth: Those with considerably more advanced trouble but favored by a cheerful, sensible temperament, affluence, determination to succeed, an abiding hope with desire for climatic change, a ready compliance with instructions and an apparent, easy adaptation to new surroundings.

That this grouping of cases, subject only to qualification according to modifying individual factors, is reasonably correct, is shown by the substantial facts of experience in favorable localities, where exceedingly remarkable results frequently are obtained in even very advanced cases and among those with most limited resources.

It thus follows that upon the basis of actual results an assuring welcome may be extended to at least some of those no less worthy if less fortunate than their fellows in their equipment and opportunities. It must not be understood, however, that those hopelessly ill or utterly impoverished should be encouraged for a moment to seek climatic change. For these state and municipal sanatoria provision along lines elsewhere suggested, becomes not only obligatory from a moral sense, but, as well, practical and economic.

As regards the large class with moderate infection, who, though much handicapped by lack of means yet not absolutely impecunious, and the associated group of those with very incipient trouble but dependent upon themselves alone, the decision of climatic change is fraught with much responsibility. The question must be reviewed plainly with the patient and family in all its phases according to the individual conditions in force and is hardly subject to generalization. The real solution of the problem for these people consists in the opportunities at their disposal in favorable regions.

The consumptive poor, while equally entitled with those more favored financially to every aid that consistently can be offered, are at the same time necessarily subject to entirely different processes of thought. The interests of such a class are in no wise subserved by sending to a far country to battle against great odds among strangers and amidst perhaps grossly unfavorable surroundings. A recognition of their inherent claims for assistance by virtue of promptings of human interest and a justification for advising a journey to a distant clime is found only by the definite knowledge of the ready facilities for their proper reception within the bounds of their limited resources. Admitting such provision there would be no greater obligation upon society and the profession than to offer reasonable opportunities for such a class to secure a restoration of health and a resumption of earning power.

As regards the cases embraced under the first division, the somewhat sweeping assertion, that all those with moderate infection in the absence of financial or other important reasons should be permitted to enjoy the benefits of climatic change, is based upon the fundamental principle that such patients possess an inviolable right to receive that early unrestricted consideration and advice which an actual experience has demonstrated to be the safest and the most conservative.

"An enormous class who are intensely anxious to avail themselves of every rational opportunity to recover from their disease, appeal to their medical advisers for nothing less than that which offers the greatest and most reasonable assurance of ultimate arrest. Cases such as these, willing to enter the lists engaged in the prolonged struggle, destined so frequently to be a trial to their patience and a test to their endurance, fortitude and bank account, with their own

existence and the happiness of near ones as the issue, surely deserve such preparation and fortunate choice of battle ground as will insure the greatest probability of final success. The obligation of the physician is not fulfilled by advising merely what is admittedly good, but is satisfied only by urging what is actually the very best for the individual case. It is not a question of the advisability or even the probability of securing arrest at home, but whether such an environment of itself is the method most likely to accomplish this result. Should not the physician in assuming to direct the destinies of his well-to-do patients make a practical application of the condition to himself and advise in accordance with the course he would himself pursue under similar circumstances?"[1]

Another consideration pertaining to the management of consumption relates to the question of the closed sanatorium. Its great practical utility in certain carefully selected cases, and its nonadaptability to other equally defined groups, have been discussed at some length in a previous paper. For several distinct classes sanatorium management was described as actually being demanded. For others institutional treatment was thought to remain *sub judice*, and for still another division it appeared to be contra-indicated.

Waiving at this time any consideration of its rationale and scope for the differing classes at home, its peculiar advantages and the great good it has accomplished, it is sufficient for present purposes to consider only its field of usefulness in favorable regions.

Paradoxical as it may appear, the proposition is advanced based upon the results of a practical every-day experience, that residence within a closed sanatorium offers the best possible conditions to be offered in health resorts to a class of cases, and at the same time that a summary recourse to complete institutional régime distinctly is prejudicial to the best interests of others. These differences pertain to such determining individual factors as the financial status, temperamental peculiarities and domestic conditions. Other considerations which justly may obtain are the possible accommodations other than institutional, and the character of the medical counsel to be obtained either within or without the sanatorium. It may be asserted that the special advantages accruing from a properly conducted sanatorium are not altogether inherent to the institution itself. An ample porch accommodation with wise provision for private balconies and perfect heating and ventilation of rooms, all with sunny exposure and a generous tempting cuisine, of transcendent importance though they be, none the less are to be secured in many instances outside of closed sanatoria. Their attainment frequently is most difficult and imposes a serious tax upon the time, energy and perseverance of the medical attendant, yet in most communities the accomplishment of these latter conditions by no means is impossible through the interested personal attention of physicians who are willing to recognize their responsibilities with reference to such details.

There does remain, however, the problem as to the relative degree of success possible to be attained in the maintenance of a system of strict disciplinary régime. Upon this feature depends to a great extent the usefulness of closed sanatoria. Assuredly, there is afforded opportunity for a more absolute and autocratic control than is permitted elsewhere. This continued vigilant supervision is sometimes necessary for the well-being of certain cases, while an equal amount of surveillance not only is quite unfortunate, but even detrimental, to the best interests of others. Furthermore, a perfectly successful supervisory direction depends, either within or without an institution, almost entirely upon the personal influence of the physician himself. As is stated in another paper: "It is almost purely a question of personal equation, and demands a certain aptitude for the peculiar requirements of the position and devotion to the work for its own sake, an interested and solicitous regard for the slightest welfare of the patient, a degree of sympathy, tact and enthusiasm which may almost be said to constitute a form of genius. This may be exercised without an institution as well as within, the sanatorium itself being in most instances a most beneficial accessory to this result rather than as a *sine qua non*. It is the man, not the institution that determines the degree of co-operation and hearty good-fellowship between physician and clientele which alone insures a proper disciplinary régime." By as much as it is not the sanatorium alone but also the attending physician that determines to a degree the influence for good, by the same token must it be remembered that it is not the disease to be solely considered, but the invalid himself.

This presupposes the consideration of other factors than its purely medical or sociologic aspects. For the consumptive the question of success or failure depends frequently upon his ability to adapt himself to unusual conditions, and in this quality he is frequently found deficient. The wisdom of an intelligent modification or adjustment of the immediate environment to satisfy properly the demands of his peculiar requirements is readily apparent. It would seem that the patients for whom such institutions were most particularly appropriate, although by no means exclusively so, were those with such limited finances as to preclude the acquirement of satisfactory conditions without the benevolent aid of partially endowed sanatoria. Were it not for the truly philanthropic agency of such institutions in providing excellent accommodations at a minimum of expense, there could remain for those partaking of its benefit but slight justification for the original climatic change. As regards others, however, experience has taught that the medical adviser, if he so elects, may devote a sufficient supervisory attention to his patients outside an institution, and

[1] "The Sanatorium Treatment of Consumption" by the author.

through the exercise of some painstaking effort may provide accommodations eminently suitable and adapted to their particular needs. There may be instituted proper methods of living in such abodes somewhat along the same lines as in well regulated sanatoria. The same well recognized principles may be enforced, if they desire, upon a smaller scale and sometimes upon a less restricted basis, and frequently more to the actual advantage of the pulmonary invalid. All sanatoria either are or are not conducted solely for incipient cases. In the former case it is hard to see how the favored few with incipient infection and without complications actually can require upon their merits that degree of personal medical attention that necessitates living under the same roof. As regards those sanatoria receiving the average of consumptives as they come, requiring only as a matter of fact such credentials as the stipulated price of admission, it would appear that the social and physical conditions could scarcely be such as would best promote the happiness and contentment of the invalids. Aside from such considerations as these, which surely are more substantial than sentimental, may be mentioned the value of the psychic element to be observed from occasional judicious change of residence and immediate surroundings. This potent influence for good scarcely is obtainable to the same extent under the fullest interpretation of institutional régime.

Let it not be understood that there is implied the slightest reflection upon the very great utility of closed sanatoria even in health resorts. The thought is presented merely in question of their invariable necessity of applicability for all cases.

The views herein expressed are based upon the results of somewhat extended opportunities for observation through the personal management of consumptives in a favorable climate. Fairly accurate records have been preserved in a series of over fifteen hundred private cases that have come under my supervision. The clinical study involved in the effort to recognize essential facts, to analyze experience, summarize the various combinations presented, to apply established principles and to effect a mutual inter-adaptation of individuals to special conditions has resulted, perhaps, in as close personal contact with consumptives and the varying confronting problems that inevitably result, as could have obtained from the more or less routine observation with a corps of assistants in an institution. Those familiar with the nature of such work can readily appreciate the exacting character of the demands necessarily imposed. The conclusions that have gradually assumed shape in the absence of preconceived ideas have been subject only to the molding influence of stubborn facts and a sternly real experience. Statistical deductions are avoided as unnecessary to this inquiry. Such have been included in several previous reports embodying results of clinical observation. As illustrative of methods employed and opportunities afforded, it is not inappropriate to allude in passing to the experience of a recent single year.

During 1902 there were under observation, of whom records were kept, 302 cases. One hundred and thirty-eight of these had lapsed over from preceding years, yet more or less actively under treatment. One hundred and sixty-four were new patients during the year. Of the total number 167 were provided with accommodations to the best of my ability outside of any institution. Seventy-nine resided for varying periods at the Oakes Home for Consumptives without nursing and without hospital facilities other than relate to an excellent location, immaculate cleanliness, scrupulous disinfection of apartments and clothing, ample outdoor facilities, excellent table, sunny rooms, well heated and ventilated. The institution is decidedly unique and without a parallel in its peculiar scope, is open to any practicing physician, and, therefore, without any definite or fixed system of medical régime. There is permitted to any medical attendant, however, the exercise of such supervisory control for his own cases as he sees fit to institute or has the power to maintain. Thirty-nine additional were privileged to occupy rooms in the hospital addition with special facilities to secure outdoor air conjoined with rest by reason of private balconies, and also enjoy the benefits derived from constant skilled nursing. During the last four months of the year there was constructed, through the charity of Mr. Charles L. Adams, an annex to the institution, which provided for the most excellent accommodation of forty people with limited means at a nominal expense. During these four months 25 of my patients resided in this building, each enjoying the advantages of a large private porch opening from the bedroom. None of the above mentioned patients could be said to be contained within the walls of a closed sanatorium proper, yet by virtue of special opportunities and surroundings were permitted to partake of many of its essential advantages with such restrictions concerning mode of life as appeared necessary in individual instances. Of those who resided elsewhere a conscientious effort was made to secure adequate accommodations and to enact a fitting régime according to the varying conditions in force.

The selection of a residence, meeting all known requirements as regards location, sunshine, porch room, frequently outdoor sleeping accommodations, the wise grouping of a chosen few with reference to congeniality, temperamental peculiarities, tastes, stage of the disease and financial ability, the presence of a competent housekeeper, or occasionally a nurse as well, and finally a continuous, if often indirect, medical oversight, has afforded a combination sufficient to produce satisfying results which cannot be here elaborated.

Recourse to occasional change in residence was made from time to time to suit the inclinations and satisfy the apparent needs of those for whom a rational diversion was indicated to

break the unceasing monotony. With the advent of warm weather all for whom a possible justification was found in their condition were urged to avail themselves of the facilities presented for the enjoyment of the benefits of country life and mountain air. Appropriate accommodations at an altitude no higher than Denver were offered at an attractive mountain resort, special arrangements annually being made by me for those whose physical conditions would scarcely warrant sojourn at increased elevations. Thus fifty-two spent the summer at Welch's Resort, near Lyons, upon the banks of one of the finest trout streams in the state. A trained nurse was in constant attendance, more as insurance against accident than because of actual need. Special nurses were employed as necessity demanded.

For the benefit of those for whom a residence in a still higher altitude during the summer months seemed plainly indicated, a careful provision was made, as is my custom each year, at Estes Park, at an altitude of seventy-five hundred feet. All available and properly located cottages were engaged in advance, and finally proportioned among the patients according to the various groupings of the improvised families. Competent persons were employed to assume the responsibilities of housekeeping, and not infrequently trained nurses were retained either by individuals or by several jointly. Nineteen participated in the joys of housekeeping at the Park. For others numbering fifty, comfortable hotel accommodations were retained early in the season.

It is not inappropriate to add that from among the very large number of cases sent to Estes Park during the past six or seven years there has resulted but one hemorrhage and one death, and that in the same individual, resulting from an obvious palpable indiscretion. All patients at these two mountain resorts were seen by me at regular intervals (once a week), with such precautionary advice and admonition as appeared called for by the exigencies of the situation in each instance.

Brief allusion may be made to the conditions which justify sending patients home. This has been advised definitely for all who could be embraced fairly under the category of hopeless cases, unless considered inexpedient for good and sufficient reasons. During the past few years permission to return home for a temporary period at a suitable time of year has been accorded frequently to special cases responding favorably to climatic change, yet not strictly reaching the stage of arrest. A permanent return for those who have secured ultimately an apparent arrest of the tuberculous process is offered upon the basis of the degree of risk and responsibility the patient personally is willing to assume. The invalid is made to realize that in spite of his great improvement a certain element of danger must attend his return. It rarely has been my practice to indorse more than a temporary return save after a six months residence in Colorado following the physical and constitutional evidences of total arrest. It has been my custom to make the consumptive understand, if possible, that once the tubercular infection has become clearly active or extensive, no matter how complete the subsequent arrest, his life necessarily becomes changed in many of its essentials in any climate, and that a continued residence in a favorable region imposes finally less of sacrifice and suffering.

THE GYNECOLOGICAL ASPECT OF MENTAL OVERSTRAIN AT PUBERTY, AND ITS INFLUENCE ON DEVELOPMENT.*

BY WM. EDGAR DARNALL, A.M., M.D., ATLANTIC CITY, N. J.

THE period of puberty is the most critical time in the whole life of the female, because this time of most rapid development of both mind and body may be the starting point for the physical perfection of womanhood or the first beginning of a physical wreck. "Many a young life is battered or forever crippled in the breakers of puberty. If it cross these unharmed and is not dashed to pieces on the rocks of childbirth, it may still ground on the ever recurring shallows of menstruation, and lastly upon the final bar of the menopause, ere protection is found in the unruffled waters of the harbors beyond the reach of sexual storms."

The girl while passing through this period is peculiarly susceptible to mental, moral and physical influences, and during this period may receive the first blow. Ere the girl is fully aware of the change that has taken place, or is warned by her mother of its significance, she has heedlessly exposed herself to injury, and the results may sap her energies through life. It is most important, therefore, that her environment and tendencies should be studied with discreet carefulness.

The average pubescent girl is at school, and under the modern high pressure system of education is straining every nerve to keep up with her duties. Her physical development is slighted, and what vitality she has is all used up in mental effort. It is forgotten that cultivation of the mind and the cramming of the intellect do not comprise the whole of education; and that unless the body is developed along with the mind that more harm than good may be done. The demand for rapid education is the curse of the age. The crowding of children through long years of work often sacrifices health, permanently, for promotion. The work of maturity is demanded by educators, where maturity does not exist.

From the ninth to the sixteenth year is the period of most rapid growth in height and weight, and sexual development begins. From now until the pubertal change is fully established there may be manifestations of physical, emotional and intellectual turmoil characterized by the various neuroses as: hysteria, chorea, epilepsy, somnambulism, neurasthenia, romancing,

* This paper will appear later in the Bulletin of the American Academy of Medicine.

cardiopathies, gastric, hepatic, renal, vesical, genital, metabolic, pulmonary trouble, convulsions, nervous laughs, nervous coughs, anemias, deformities, etc. The neuroses may be of a purely psychic type as: hallucinations, ecstasy, delusions, night terrors, idiocy, imbecility, the various types of insanity, stupor, love, jealousy, anger, hate, theft, rape, arson, homicide, suicide, alcoholism, and the various forms of mental disturbance other than insanity. There may be periodic headache, capricious appetite and muscular twitchings.

During this period the body is developing so fast that brain weight is actually lost by the lessening of the usual blood supply to the brain, which is diverted to nourish rapidly growing organs. The child brain under these circumstances is easily fatigued. What is acquired by a brain that is tired is soon lost, memory becomes impaired, vital force is required faster than it is generated; the work of to-day is done on to-morrow's credit, and the system of the child becomes wholly at a loss to protect itself against disease and accident. "I am convinced," says Pearce, "that from the neurologist's standpoint such children in the cities would do better to have only one session in school, than be compelled to rush to a midday meal, then back again within an hour to recitation, which necessarily requires the freest circulation in the brain to the detriment of digestion, which, of course, is ill carried on under such abnormal circumstances. Over half the general aches and pains, including headaches, are due to disturbance of metabolism from various causes."

The physiologic processes of puberty make greater demands of the girl than they do of the boy, and yet in addition to performing the same work in school as her more rugged brother, her parents are not only anxious that she shall excel in the regular studies, but that she shall also acquire accomplishments, such as music and painting, at an early age. Is it any wonder then that under this system of high pressure and overstimulation the overworked girl, robbed of rest, sleep and exercise, fails to develop physically into perfect womanhood? These years of endless antagonism between brain growth and body growth, years perhaps the most important in her whole life, are very needful for the perfect development of the reproductive organs and the establishment of their functions. On them may hang the whole future health and happiness of the woman and her usefulness as a member of society.

Let me illustrate for a moment what I mean: To-day girls are absolutely started to school before they can dress themselves. They sit in miserably ventilated rooms from six to eight hours with perhaps a few minutes' recess, when they hurriedly eat a cold lunch. At twelve years of age they are studying English, mathematics, and a host of other things. The girl reaches home in the afternoon tired and worn out from efforts that have been too much for her. She must go at once to her music and practice for two hours, or until she becomes so nervous that the notes fail to strike harmony. Supper is announced. Afterward she must begin her preparation for the next day's work, often being forced to study as late as ten or eleven o'clock. Then, of course, her tired brain and body are too exhausted for sleep. This is not an over-drawn picture, and every physician knows that it is not right to subject a girl verging on menstruation, or one in whom nature is making a desperate effort to maintain this function, to such an exhausting strain as this.

Visit the female colleges and you will be impressed with the large numbers of pale-faced girls whose roseate blushes of youth have been chased away by nervous exhaustion born of the shadows of midnight toil; bright eyes have been dulled by brain fag, and sweet temper transformed into irritability, crossness and hysteria, while the womanhood of the land is deteriorating physically and filling our hospitals with invalids, neurasthenics and sexual incompetents. After this weary, worn-out, rest-needing girl is released from school, she launches into the dissipations of society. She may be highly cultured and shine in society, but her future husband will discover too late that he has married a large outfit of headaches, backaches, and spineaches instead of a woman fitted to take up the duties of life.

Accompanying this prolonged strain of school life there is usually a combination of other causes also involved in the school breakdown. Home life is often badly regulated, and the parents or guardians must in many cases share a part of the blame on account of carelessness and unwise indulgences at home. Scant attention is given to the functions of the bowels and bladder. Gross carelessness is the rule. There is an utter disregard in many cases for the menstrual week, when by their own feeling and sensations women ought to know that they are unfit for exhausting brain work or fatiguing body work. The religious systems of Moses and Zoroaster made provision for this period, and even savage Indian women show more wisdom at this period than the product of modern civilization. The tepee of the menstruating Indian is built so low that she is compelled to lie down. Again, the stomachs of girls are often spoiled by an unwholesome diet of sweetmeats, pickles and highly seasoned food, and the bad habit of nibbling between meals. Too long confinement in impure air, inadequate supplies of light, little exercise and poor sanitation complete the evils that other factors have contributed to.

Schmidt-Mounard found in the schools of Leipzig that headaches, sleeplessness and nervous ailments were frequent, especially among girls. Those schools, however, in which attention was given to gymnastics and other forms of exercise had a much smaller proportion of children suffering from these complaints than those in which it was not.

The adolescent period has been termed "the golden period of life when the faculties of both soul and body reach their acme." It is, writes

Alice Smith, "the transitional period when youth begins to look out upon society with the dawning insight of maturity. It is the time when childish illusions are dispelled, and the time when broad, educational influences are most needed." The work should not be such as will overtax either the mental or the physical powers. Girls especially should be exempt from gymnastic work and other heavy physical effort during the menstrual period lest they bring about pelvic disease; and severe mental strains lest they fail to properly develop and functionate. "The gymnastic ideal should be to develop a splendid physique, a sound condition of the body, which means the uniform development of the organism in all its organs and parts." There should be a perfect adjustment of structure to function, a conserving of energy against the strain of future emergencies, and a creation of perfect metabolism, *i. e.*, the balancing of nutrition and waste.

While the inflexibility of school requirements acts as one of the factors in maintaining and perhaps in creating this unhealthful physical state among girls in many instances, yet we are well aware that there are also other and potent causes for it, such as the unsuitable dress of the average female, social excesses, indiscretions in diet, neglect of sleep and the bodily needs which contribute to the result in a large degree. Could the teacher understand the nature and the signs of the extra physical strain to which so large a per cent of the female pupils are periodically subjected, and were she free to temper the demands of the curriculum to meet the condition, much and serious injury might be avoided. Certainly one of the strongest factors in bringing about a reduction of nerve energy and laying the foundation of a future psycho-neurosis is menstrual disorder and an unhealthy condition of the generative organs. The bane of the existence of the schoolgirl worn out from her overwrought and overstimulated life is dysmenorrhea. Chapman thinks that fully 75% who have reached the age of puberty would give a history of scant and painful menstruation. Engelman in a tabulated list of 5,000 cases among schoolgirls found 66% suffering from menstrual troubles. As a result of observations made on 2,000 girls in the schools of New England Jane Kelley Sabine found 75% with menstrual troubles, and 90% with leucorrhea and ovarian neuralgias; 60% had to give up work for one or two days in each month. The fact of the pain being increased with hours of intensity of study, with worry and emotion, and being diminished or ceasing entirely without treatment of any kind during vacation time is a fitting commentary on the underlying causes. These are nervous menstrual pains oftentimes due to a spasmodic action of the uterine muscular tissue. They are augmented by physical exertion and mental strain. The mental or nervous element is a more prominent factor than we usually take it to be, and shows the importance of general management of the girl and the elimination of all injurious conditions of worry and debility, mental or physical, for psychical conditions and nerve influences undoubtedly have much to do with this function.

"Statistics have clearly shown the tremendous susceptibility and the almost feverish activity of the system in the pre-pubertal period, the period of developing womanhood; susceptibility indicated by heightened morbidity and nerve excitement; by increase of stuttering and hysteria; heightened physiological activity by increased growth; and resistance to disease by lowered mortality, — all gradually wane as the vital energies are claimed more and more by the reproductive function, and reach their lowest ebb with the advent of puberty, again rising after menstruation is established, and it is at this period of still unstable equilibrium that we find the schoolgirl."

Similar conditions less intense recur before each menstrual period. Investigation has proven the increased pulse rate, blood tension and temperature, increased nerve excitation and muscular power, with a depression consequent upon the appearance of the flow; the system slowly regaining its normal tension with slight rise shortly after cessation, and these scientific facts are verified and emphasized by the status of young womanhood of to-day, which reflects the present conditions of life and indicates the susceptibility of the physiological function in early years of puberty and during menstruation.

This mental depression is evident in the listlessness, indifference and inability to master tasks easy at other times noted by every observant educator as indicating the presence of the flow and the period of its first advent. It is at this period that overstrain most readily occurs. The powers of attention and concentration are most quickly exhausted and the brightest mind, the most sensitive, high-strung, nervous organization is, as a rule, most responsive and most liable to impairment during the first menstrual periods. The nervous system in the healthy and vigorous frequently shows an excitability which may not pass beyond psychical limits; but in the less strong, often, symptoms which are pathological are developed and the connection between the menstrual epoch and the mental status becomes pronounced. The younger the girl, the nearer the period of puberty, the more impressionable is her nervous system and her susceptibilities for influences good or evil, so that the greatest amount of harm is wrought in the first year of her functional life.

Dr. W. Gill Wylie pointedly expresses the truth when he says that "the American horse receives on the average better treatment than the young woman of America from the time of early girlhood until the age of development has passed. The stock breeder never forces the young animal during the period of development, realizing that it is the time the greatest care should be taken, while American parents, especially of the middle classes, with great ambition for their children and the desire that they develop intellectually beyond their own standard,

allow their heads to be crammed with knowledge so rapidly that the brain cannot assimilate it, and the result is that all the strength of development is devoted to the brain, and the physique finds expansion as best it can. New England furnishes the extreme type of this woman, supposedly more perfect than in any other section, intellectually above the average, but with a physique below par, with greatly reduced reproductive powers, all due to the forcing of study at the age of development."

This forced education, therefore, at or subsequent to the time of puberty leads to flabby muscular development, poorly developed lungs, weak heart and arteries, feeble digestion, anemia, malnutrition of the nervous system, nervous irritation and an increase in neurasthenia, chorea, hysteria and final collapse.

Careful observation will show that a large proportion of the women who make up a neurotic class have arrested development of the sexual organs in varying degrees. The human brain is approximately one forty-fifth of the body weight. It demands about one seventh of the blood to supply its needs. If the education be forced at the developmental period of puberty it needs more to meet the strain. The growing uterus and adnexa must suffer, therefore, in consequence of the withdrawal of blood and the nutrition it should receive. The result is a defect that is very common,—the failure of the uterine cervix to develop. It retains its infantile characteristics. Under these circumstances the uterus is usually abnormally anteflexed, and the canal of the uterus less patulous than normal, with a very small os. The cervix is long and conical in shape and the uterine functions imperfectly discharged. These women nearly always suffer with scant and painful menstruation, while amenorrhoea, menorrhagia and metrorrhagia, endometritis and leucorrhea are common. The entire uterus as well as the tubes and ovaries may be involved in this imperfect development, and may remain more or less rudimentary. Under the strenuous responsibilities of life it is this class of patients who are most likely to break down and suffer from neurasthenia and hysteria, and if of an unstable stock even develop insanity. Much of such lack of development and final breakdown, undoubtedly, has its beginning back in the forcing process of school days, the insufficient attention to physical development, which is allowed to struggle for recognition as best it may, the abuse of the corset and other vicious habits of dress and person.

As preventive measures much can be done by a watchful study of the girl for overwork, by restricting the studies during the establishment of puberty, and if this cannot be done, by taking her from school altogether until menstruation is established. Ambition to excel must be curbed when it is pressing too hard with school duties. Better sacrifice the first place in the class, or fail on an examination than get through at the expense of a poorly developed body, a nervous breakdown, and a dwarfed womanhood.

Especial attention should be paid to a proper regulation of habits at home. All stimulants and excitement, such as late hours, children's parties, and the many artificialities of our so-called modern civilization which tend to bring about a premature maturity should be avoided. Childhood is the time of active development and growth, and as sleep is nature's great upbuilder and restorer, children should have an abundance of it, especially while their vital capacities are being drained by exacting school duties. Especial care must be given to the general health, daily evacuation of the bowels and frequent emptying of the bladder. Proper diet should be looked after, hurried eating and eating between meals absolutely forbidden, knick-knacks and sweetmeats restricted, while plenty of outdoor exercise and healthy recreation should be engaged in.

Even more care is to be employed as the period of puberty advances; that period when the woman's womanhood is struggling with all its energy for recognition, and when the rapid growth of pelvic organs is making exacting demands upon her strength, vitality, and nervous system that must be met. If her supply of vital force is expended in mental pursuits her physique must suffer. Undue excitement, mental worry, or anything that may divert the vital forces from the great work they are performing in the development and perfecting of her womanhood must be jealously guarded from the pubescent girl, for in all her entire life this short period is the most important to her, mentally, morally and physically, and her whole future happiness may hang upon it.

Not until teachers and parents remember that health is more important than knowledge; not until schools realize the futility of the forcing process of education, and guard the health of their girls by diminishing rather than increasing the work of the pubescent period; not until they appreciate more fully that a sound mind depends upon a sound body, can we hope to diminish the pitiable army of suffering neurotics and sexual incompetents, who so largely constitute the womanhood of the land, and who are to be the mothers of the men of our country.

BIBLIOGRAPHY.

Carstens, J. H.: Journal American Medical Association, Oct. 17, 1903.
Chapman, G. C.: Alabama Medical and Surgical Age, March, 1896.
Darnall, Wm. Edgar: American Gynecological and Obstetrical Journal, June, 1901.
Dickinson, R. L.: New York Medical Journal, Nov. 5, 1887.
Englemann, G. J.: Journal, American Medical Association, Feb. 9, 1901.
Englemann, G. J.: Transactions, American Gynecological Society, 1900.
Gossett, W. B.: Louisville Journal of Medicine.
Kellogg, J. H.: Transactions, Michigan State Society. pp. 41, 1891.
Kirk: Handbook of Physiology. pp. 178.
Miller: Journal, American Medical Association, Jan. 9, 1897.
Montgomery, E. E.: Text Book of Gynecology. pp. 159.
Martin's Human Body, Appendix. pp. 15.
Noble, C. P.: Pennsylvania Medical Journal, Nov., 1900.
Pearce, F. S.: Journal, American Medical Association, Nov. 14, 1903.
Sabine, J. K.: Paper before Society for Medical Improvement, Dec. 16, 1901.
Schmidt-Mounard: Treatment, Nov., 1900.
Stuver, E.: Medical News, Aug. 19, 1899.
Smith, Alice M.: American Medicine, Nov. 7, 1903.
Thomas and Munde: Diseases of Women. pp. 89.
Wilkinson, D. L.: Journal, American Medical Association. Nov. 14, 1903.
Wylie, W. Gill: in New York World.
Zinke, E. G.: Journal, American Medical Association, Feb. 9, 1901.

Clinical Department.

BOSTON CITY HOSPITAL CLINICAL MEETING.

APRIL, 1904.

DR. F. B. MALLORY in the chair. DR. L. R. G. CRANDON, secretary.

(Concluded from No. 10, p. 270.)

I. A CASE OF ADDISON'S DISEASE. II. A CASE OF CANCER CONFINED TO THE PAPILLA OF THE COMMON BILE DUCT.

BY GEORGE G. SEARS, M.D.

CASE I. This patient is an engineer, sixty-one years old, who has been in the hospital since Mar. 28. He is an Englishman who claims to follow his family back to the tenth century, so that he has no apparent hereditary right to his very dark complexion. His health has always been good except for an attack of rheumatic fever twelve years ago. He noticed no impairment of his general condition until about three months before entrance when he began to complain of loss of strength. About a month later he bruised his shin, suppuration followed and he was compelled to give up work the following week. He has since felt very weak and drowsy and has been confined to the house. A week before entrance he developed an acute bronchitis.

When first seen there was general pigmentation of the entire skin which extended to the lips. Elsewhere the mucous membranes were normal. The discolorations were more marked in the flexures of the joints, and scattered over the body were numerous areas of deeper color which varied in size from a pea to a ten-cent piece. The pigment is particularly dark in the neighborhood of scars, a number of which are scattered over his body. This is especially well marked about the recent scar on his left shin. Since he came under observation the pigmentation has increased in intensity and has extended to the inner surface of his lips. He is able to be about but complains of great weakness. He has vomited once or twice without apparent cause, but otherwise has had no gastric symptoms. His temperature was at first slightly elevated as a result of his bronchitis, but is now running a normal course. The liver and spleen are slightly enlarged, otherwise physical examination is negative. No tubercle bacilli have been found in the sputum and he has not reacted to 5 mgm. of tuberculin, but there is reason to suspect the activity of our present supply. The urine contains no sugar, but the slightest possible trace of albumen and a few hyaline and fine granular casts have been found. He has been getting one grain of suprarenal extract, at first three times, later four times, a day, without any apparent result one way or the other.

CASE II. The case has considerable interest since the only noteworthy lesion found at autopsy was a cancer, not larger than a pea, which had developed in the papilla of the common bile duct, completely occluding it. It is the only one of the sort which has ever come to autopsy at the hospital. Dr. Mallory tells me that he has seen two similar cases in Dr. A. T. Cabot's practice, in one of which the diagnosis was correctly made by Dr. Cabot before death.

The patient was a German, forty-nine years old, who was admitted to my service on Feb. 27, 1904. His previous history recorded tuberculosis of the knee at the age of sixteen, catarrhal jaundice eighteen years ago, gonorrhea and syphilis. His family history was negative. Five weeks before entrance he had an attack of acute bronchitis. He was given iodide of potash which he says upset his stomach and caused vomiting. Ten days before entrance he noticed that his skin was growing yellow, and about the same time an urticarial eruption appeared, at first on his wrists and ankles, but later over most of his body. The itching became intense. Constipation was troublesome and the stools were clay-colored. Except for jaundice and an eruption of erythema and urticaria, physical examination was negative. The icterus, however, steadily deepened until it assumed a distinct green hue. He slept but little owing to the constant itching, and lost in weight and strength. There arose a suspicion of a fluctuating tumor of indefinite limit below the margin of the liver. Dr. Post, who was kind enough to see him with me, advised against operation on the ground that the trouble was probably malignant. The previous excellent health of the patient, the mode of onset, the coincidence of urticaria and the failure to detect any important evidence in corroboration in physical examination made me hesitate to accept such a diagnosis unreservedly. I was more inclined to attribute the obstruction to a gallstone or to some obstruction outside the duct, *e. g.*, a constricting band. At all events, I thought he ought to have the benefit of the doubt, and on my insistence he was transferred to Dr. Post's service and the abdomen opened by Dr. Paul Thorndike. The operation disclosed nothing abnormal except a distended gall bladder full of viscid bile. The patient died two days later. Dr. Post was vindicated.

I. LEUCOPLAKIA OF TONGUE. II. CICATRICIAL STRICTURE OF PHARYNGEAL ORIFICE, RELIEVED BY PLASTIC OPERATION.

BY G. A. LELAND, M.D.

CASE I. Mr. D., about sixty-eight years old, has been an inveterate smoker and also a copious drinker all his life. About ten years ago noticed some white spots on the tongue, without any pain or discomfort. Four years ago there appeared on the right side of the lower lip near the center a superficial ulceration called a "smoker's cancer" by his physician. He was given a paste or salve for it which healed it, and left no scar. The white patches continued and about a year ago on the under surface of the front of the tongue there appeared a very white thick layer. This has continued since and now has the appearance as if 95% carbolic acid had been painted over the under side of the tongue, considerably elevated, rather hard (horny) to the touch, as far back as the flexure of the floor of the mouth and slightly extending upon it.

On the upper surface are several more or less rectangular patches of a dull white; also on the inside of the lips. About four weeks ago this appearance, especially on the lips, was much more marked, with here and there a slight solution of continuity, with more or less slightly painful irritability. The patient was given 2% solution of resorcin with which frequently to paint the lips, and now they are quite smooth, although here and there having a small white spot. He has no pain nor discomfort, and no curtailment of movement, though pepper, hot drinks, alcohol and tobacco smoke cause the tongue, which is rather large and flabby, to smart. He is now a total abstainer.

This is evidently a case of leucoplakia with extreme proliferation of the epithelium on the under surface of the tongue where it is least

rubbed. It is very much like a case in Mikulicz and Michelson's atlas. This they have named epithelioma, to which end this patient is doubtless going.

CASE II. The next patient, P. H., age about thirty-five, before four years ago had a very extensive ulceration of the skin of the face, the scars of which you see. That of the fauces and buccal pharynx was perhaps even more extensive. As a result of the process of healing both the velum palati and the tongue became firmly adhered to the posterior wall of the pharynx. The glosso-pharyngeal adhesion approached the middle from the sides. This was in the spring four years ago. During March and part of April he came to the throat Out-Patient Department for relief. Dilatation was practised, but the cicatrix contracted more and more till in April he was admitted to the surgical house service. Here certain treatment was instituted which gave him some relief, and he went out, to be again admitted in May. By this time it was impossible for him to get enough air for respiration and tracheotomy was done.

For some time before this it was with the greatest difficulty that sufficient nourishment could be swallowed, and nutrient enemata were resorted to,—about April, 1900, as my memory serves me. After a few weeks he was dismissed from the hospital with the tracheotomy tube in *situ*. In October, he visited the Aural Out-Patient Department and the condition then was, that the only entrance to the esophagus from above the tongue was about sufficient to admit a small surgical probe. The glosso-pharyngeal adhesion seemed to be about ½ inch in thickness. The velum palati was adhered completely, the only opening being about 1 cm. wide by 1½ cm. long near the hard palate.

For the relief of this the method devised by the late Dr. J. E. H. Nichols of New York, a member of the American Larynx Association, was used to produce a cicatricial perforation at the outside limit of the desired division of the cicatricial adhesion, and hence under cocaine a suture was passed down through the remaining orifice and as much of the cicatricial mass was grasped as possible, bringing it out near the right lateral wall of the pharynx. The tissue being exceedingly hard several needles were broken in the attempt, but finally about 3 cm. were enclosed in a very heavy double silk suture. The right side was only attempted at this time. Up to the middle of November or first of December the suture had to be renewed once or twice; but at that time it had cut through so as to leave space large enough to admit an index finger. He was now able to swallow a pretty good bolus of meat well chewed, and liquids and semi-solids without trouble. There was sufficient room for respiration and the tracheotomy tube was removed, the wound healing very satisfactorily; and by the first of the year 1901 he was dismissed. Having had experiences enough of a surgical nature he decided to wait, and did not appear again till a month ago when he thought he would like to have a little more space, that formerly obtained not having contracted perceptibly, but desiring to eat more and faster. With a double curved aneurism needle again under cocaine, a grasp was taken on the left side out as far as possible toward the side of the throat, and the case is now shown so that this suture can be seen in place. It is, as before, a very heavy silk suture doubled, and has already made a pretty good cicatricial opening. It will now be best probably to hasten the cutting through of the enclosed mass by an elastic ligature.

The salient point about this case is that dilatation of such cicatrices around orifices is of no permanent benefit, besides being too slow and tedious; and an interesting point and of some therapeutic value is that he was able to nourish himself for about seven months per rectum.

Medical Progress.

PROGRESS IN THORACIC DISEASE.

BY JOHN W. BARTOL, M.D., BOSTON.

"TAPOTAGE" IN DIAGNOSIS OF CAVITIES.

ERNI[1] claims that such cavities as occur superficially at the apex, *i. e.*, in infra-clavicular or supra-scapular regions, give conclusive evidence of their existence in response to a new maneuver in examination. Taking between thumb and forefinger the tip of a flexible bladed paper knife, weighing perhaps 100 gms., he taps gently on the chest in the suspected area; as he approaches the zone of reaction the patient complains of feeling a movement within, and when over the cavity, at each blow there results a short attack of coughing and immediate expectoration of sputum, evidently representing the contents of the cavity. A possible therapeutic value is also given to the procedure in that, after repeated percussion, the sputum at first purulent becomes mucous and finally disappears, giving the cavity a possible chance of cleansing itself and eventually cicatrizing.

DIAGNOSIS OF ASTHMA BY TRACHEAL TRACTION TEST.

Abrams[2] adds another novelty to his already imposing list of diagnostic maneuvers. In health and in all other conditions so far studied, the tracheal traction test is positive, *i. e.*, when percussion is performed over the manubrium sterni, first with the chin approximating the sternum, and then with the neck forcibly extended, a change in the note is observed from resonant or hyper-resonant to dull or even flat. This change does not take place in spasmodic bronchial asthma, either during an attack or in the interparoxysmal period, but is observed in cardiac or uræmic asthma. The explanation, which, if correct, is in support of the muscular theory as against the angioparetic theory of spasmodic asthma, is that in asthma the tone of the bronchial muscle is so reduced that it no longer reacts in the ordinary way by contracting in response to the stimulation of the vagi, brought about when the neck is forcibly extended on the sternum.

LATENT FOCI OF TUBERCULOSIS. TUBERCULIN DIAGNOSIS.

Cornet[3] emphasizes the misleading nature of statistics based on autopsy findings, where the smallest healed lesions put the individual in the tubercular list, without discrimination as to the obvious virulence or non-virulence of the infection, and founded almost entirely on tabulation

[1] Sem. Med., Mar. 9, 1904.
[2] N. Y. Med. News, June 25, 1904.
[3] Berl. Klin. Wchn., xli, 14, 15.

of cases studied in large hospitals, the inmates of which obviously do not furnish a reasonable criterion of the total population. The relative virulence of different races of tubercle bacilli, and the possibility of lesions histologically indistinguishable being caused by different members of the acid-fast group, of low order of virulence, are both questions which need much further study before we can ascribe as much importance as is commonly given to "power of resistance" or "hereditary predisposition" in explaining lesions that in one individual show evidence of prompt healing and in another rapid advance. Against the positive tuberculin reaction as diagnostic proof or conclusive indication for antitubercular treatment, it is to be logically urged that it gives us no indication of the extent, histological progress or virulence of the assumed infection, and must remain simply a valuable confirmatory evidence when other signs point to tuberculosis.

Hope of clearing up in the immediate future some of these obscure points, however, is suggested by the results reported by Kapralik and v. Schrötter.[4] They have followed up preliminary studies instituted by Cornet himself in 1900 on the action of tuberculin taken by inhalation mixed with water in a finely divided spray. In the first place, it seems proven that, making allowance for the difference in dosage, the signs of positive reaction will be the same whether tuberculin is given subcutaneously or by inhalation. Upon the difference in dosage, and on the varying relation which the injection dose bears to the inhalation dose at different periods in progress of the disease, depend the conclusions in applying the test as a differential diagnostic. Thus in Group I, which includes cases in which the physical signs are obvious, the inhalation dose required to produce a positive reaction averages twenty times as large as the injection dose; while in Group II, comprising those cases in which signs of pulmonary involvement are lacking or absent, the inhalation dose averages 250 times as large as the injection dose. Incidentally, it is assumed that the marked variation in the relation of one dose to the other which may be exhibited by cases in series of Group I, is due to particular characteristics of the individual case, *i. e.*, size of foci, age, activity and varying virulence, while the much more constant relation exhibited by cases in Group II is due to the fact that here the tuberculin of the inhalation does not meet directly with lung tissue that is involved, but simply reacts through the circulation on more remote foci. In conclusion, and as result of study of twenty-eight cases, they strongly advise a combination of the two tests, claiming that while a positive reaction from injection alone shows simply that there is somewhere a focus which only by inference can be fixed in the lung, a positive reaction from the inhalation also will give important testimony based on the relation which the doses bear to one another, as to the actual involvement of the lung and its extent; and further, that a changing relation of the doses as time goes on may lead to important prognostic conclusions, as in cases of suspected infection only, or in conditions tending to change a case from Group I to Group II, or *vice versa*.

[4] Wien. Klin. Wchn., 21, 22.

JUGULAR THROMBOSIS IN PULMONARY TUBERCULOSIS.

Aldrich[5] reports ten cases (nine from the literature and one of his own), in which, in the later stages of phthisis, there was a quite extensive thrombosis of the internal or external jugular, often extending into the subclavian and farther. He is of the opinion that such a condition obtains much more frequently than is generally supposed, and that even in the early stages of the disease, it is not so rare as might be assumed. As factors likely to contribute to the process of thrombosis, there exist in the advanced cases: (1) Change in the blood; the presence of some bacteria and the toxins of many more, and in terminal conditions a general invasion with the more or less virulent micro-organisms of a mixed infection; (2) changes in the venous wall due to nutritional alterations, as a result of which it becomes a ready lodging place for multiplying organisms; (3) foreign matter in the blood stream tends to formation of fibrin ferments favoring coagulation; (4) with diminishing vital force the influence of stasis is added. Reasons for the frequent location of the thrombi in the jugulars are anatomical, *i. e.*, the existence of the valves and the ease with which an eddying motion of the blood may be set up there.

MUSCLE DEGENERATION AS A SEQUENCE TO INFECTIOUS PROCESS IN LUNGS OR PLEURA.

Coplin[6] presents a preliminary study of changes taking place in the intercostal muscles and the diaphragm as a result of inflammation in lung or pleura. The first step he considers to be a granular degeneration, identical with the cloudy swelling seen in other muscles as a result of infectious process, and probably due to toxins circulating in the blood. Following this, however, he describes changes incident to the involvement of and extension from the adjacent serosa, proceeding in some cases to leucocytic invasion and necrosis, with the ready identification of organisms that in the pneumonias and epipneumonic pleurisies are doubtless pneumococci. The clinical application of these findings is suggested in the likelihood that there well might be modifications in the physical signs as a result of the increased density of the thoracic walls, while the structural changes in the muscles may also play their part in the altered shape of thorax and diminished respiratory function. They also have a bearing on the frequent association of intercostal rheumatism or neuralgia with pneumonia, and the occurrence of pleuritic pains, although the immediate cause of the painful manifestations is probably an implication of the nerve fibres in the degeneration.

[5] N. Y. Med. Jour., Mar. 5, 1904.
[6] Am. Jour. Med. Sci., May, 1904.

PERICARDIAL EFFUSION.

It is apparent that, although effusions of noteworthy size are not difficult of demonstration, their presence is still often overlooked, and that even after diagnosis is made, paracentesis is not unlikely to prove unsuccessful. Thayer [7] reports two cases, both tuberculous, and both with classical signs of large effusion; in one 1,250 cc. of almost clear straw-colored fluid were readily withdrawn by aspiration in the fifth left space, about two fingers' breadth inside the mammillary line; in the other, aspiration in the sixth left space at the sternal border and in the left costo-xyphoid angle was unsuccessful, while at autopsy the enlarged and dilated heart was contiguous with but not adherent to the anterior wall of the pericardial sac, and there was over 1,200 cc. of fluid lying posteriorly and at the lateral angles. So far as these cases go, they lead to the conclusion that the procedure of Delorme and Mignon, which was practiced in the second case, is not a reliable one, but that on the whole the recommendations of Shapojshnikof lead to the surest results. He advises in all cases exploratory puncture with a hypodermic needle, which serves to determine the character of the fluid and often gives important aid in fixing the position of the heart, which as a rule will be found close to the anterior wall of the pericardium, and does not fall downward and backward. In the fourth or fifth left space one is particularly apt to injure the heart, and in cases where the effusion is not large, the third or fourth right space close to the sternum is advocated, providing always that there be dullness at that point. In larger effusions, with diaphragm depressed and the semilunar space occupied by flatness, the sixth left space just beyond the supposed position of the apex is indicated.

Further articles bearing on the diagnosis and relative frequency of tubercular pericarditis are those by Stockton [8] and Seagliosi.[9]

A TEST OF THE HEART'S FUNCTION.

Katzenstein [10] describes at length a new and seemingly very practical method of informing oneself about the power of endurance of any individual's heart, supplying a need that every clinical observer, whether physician or surgeon, feels when the time comes to express an opinion as to the probable effect on the cardiac muscle of an increased amount of work. He was originally led to further investigations by the result of experiments on animals, which showed that ligature of larger arteries called forth in the heart an increase in force, manifested by an elevation in the blood pressure with unchanged or lowered pulse rate; these modifications continuing throughout the period of formation of the collateral circulation, and gradually returning to normal again as the resistance becomes less.

Applying this same principle to the study of the human heart, he found that a marked resistance, even if transiently exerted, would be met by the normal heart with a prompt increase in force without a rise in pulse rate, whereas a heart, insufficient for one reason or another, would change in pressure or rate, or both. The technic consists simply in compressing to obliteration of wave both iliac arteries at the inguinal ligament, and noting what change takes place in the general blood pressure and the pulse rate. Duration of compression is at most five minutes, and does not require great amount of force. As a result of numerous investigations, he tabulates the following standards:

1. In the normal heart an increase of pressure of from 5–15 mm. Hg., while the rate remains the same or possibly becomes slower.

2. In a heart that is hypertrophied and of undiminished force, the pressure rises AT LEAST 15 mm. and may reach 40 mm., while the pulse again is unchanged or slower.

3. In a heart whose muscle is somewhat insufficient, the pressure fails to rise and the pulse is unchanged or faster.

4. In a seriously impaired heart the pressure is lowered and the pulse rate increased. For ordinary purposes it is safe to conclude that if the pulse goes up the heart is unsufficient; if it remains unchanged or lowered the heart has normal force.

In nervous and easily excited patients the precaution should be taken of accustoming them to the manuever for several days before the observations are recorded.

[7] Bull. Johns Hopkins Hosp., May, 1904.
[8] Am. Med., June 11, 1904.
[9] Deut. Med. Wchn., No. 24.
[10] Deut. Med. Wchn., 22, 23.

Reports of Societies.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

ANNUAL MEETING AT ATLANTIC CITY, NEW JERSEY, JUNE 2, 3 AND 4, 1904.

(Concluded from No. 10, p. 274.)

FIRST DAY — (Continued).

FOUR CASES OF FOREIGN BODIES IN A BRONCHUS.

DR. A. COOLIDGE, JR., of Boston, Mass., presented reports of four cases, three treated by means of a preliminary tracheotomy, and one by Killian's bronchoscope, through the natural passages. In the first three cases, after tracheotomy, a short tube was inserted through the tracheal wound, and the foreign body easily removed through the tube. In three cases a general anesthetic was used; in one, only cocaine spray in the trachea.

The author referred to the change in the attitude of many surgeons toward operating for foreign bodies in a bronchus, since the introduction of direct bronchoscopy by Killian, in that formerly many advised delay or non-interference, whereas now he felt that there was, and should be, little or no hesitation in operating on these cases.

The discussion of these two papers brought out reports of many cases of foreign bodies in both esophagus and bronchi, and many successful removals, but no other cases in which the Killian method and instruments had been used.

PRESENT METHODS FOR THE TREATMENT OF MALIGNANT DISEASE OF THE LARYNX.

Dr. D. Bryson Delevan of New York read this paper. Stating that there was nothing new to present in regard to etiology and pathology, he proceeded to discuss the treatment under the following heads: (a) Internal medication; (b) antitoxins; (c) liquid air; (d) ligation of the carotids; (e) the x-ray; (f) the ultra violet ray; (g) radium; (h) surgical methods. The author dismissed internal medication, antitoxins, liquid air and ligation of the carotids as useless.

The various "radiants" up to date had not proved curative, although enough good has seemed to follow their use in some cases to warrant further and patient work with them.

In general he felt that, from a review of all the various methods of treatment, the radiants, particularly the x-rays, are the best means at our command for the temporary relief of the chief symptoms of advanced cases of laryngeal cancer, and that direct surgery presents the only *certainty* of success in the curative treatment.

The author reviewed the literature of the surgery of the larynx, especially commending the work of Butlin. He recommended thyrotomy and partial extirpation for the cases seen early, with small and sharply limited lesion, and total extirpation for the more advanced cases; and thought that, notwithstanding some disadvantages, a preliminary tracheotomy, some time previous to the main operation, was advisable.

He urged particularly the early recognition of the cases, and also the necessity of having especially skilled and experienced operators and nurses in charge of all thyrotomy and tracheotomy cases, and also laid great stress upon the danger of excising portions of malignant growths for microscopical examination, on account of the irritation and immediate stimulation of the growth to a rapid and extensive development.

THE EFFECT OF TOBACCO UPON THE THROAT.

Dr. Samuel W. Langmaid of Boston presented this paper, giving as his thesis the statement that "smoking is responsible for certain forms of throat disease, or is an added factor in the injurious effects of climate." The author believed that comparatively little nicotine was absorbed, but that most of the poisonous symptoms were produced by the absorption of carbon monoxide gas, possibly by some of the other by-products of the imperfect combustion of tobacco. The author's summing up statement was that "tobacco smoking is not only harmful to the throat as a direct local irritant, but that it produces vasomotor disturbances of the pharyngeal mucous membrane by its poisonous effects upon the nervous system," and that in most cases of acute pharyngitis and nasopharyngitis and cough, due to irritation of pharynx, larynx, or trachea, occurring in smokers, little or no result could be obtained from treatment until or unless the smoking was stopped or much lessened.

FINAL HISTORY OF A SUPPOSED CASE OF VOCAL NODULE; EPITHELIOMA OF THE LARYNX; THYROTOMY; DEATH.

Dr. Charles H. Knight of New York presented this report of a case reported in detail at the meeting in 1901.

With not much change in the nodule, the case was examined during 1902 by several laryngologists, one of whom removed a fragment with a cold wire snare, the microscopical report upon which was "Papilloma of Larynx — Malignant Tendencies." Then followed great reaction, which did not subside, and finally, in December, 1902, a thyrotomy was done, and extensive infiltration found. A few hours after the operation the patient suddenly sat up in bed, gasped for breath, became cyanotic and died shortly afterwards.

The author called attention particularly to the marked stimulation to activity after the irritation caused by removing the small specimen for examination; to the question of the relation between microscopic reports and clinical history; to the question of the possibility of the transformation of a benign growth to one of malignant character, or the development of latent malignancy, and to the fact that we "are still in the dark as to positive signs by which to identify malignancy in its inception."

TWO CASES OF PEMPHIGUS OF THE MOUTH.

Dr. John W. Farlow of Boston read the above paper, calling attention to the rarity of the disease, quoting freely from its literature. Accepting the definitions commonly given of the disease, the author described in detail two cases in which the typical lesions were well marked in the mouth. The blisters occurring on the mucous membranes were so short lived that it was difficult to demonstrate them before they collapsed, and then showed only the slightly raised swellings, with raw surfaces, sometimes reddish in color, sometimes white from the macerated and loose mucous membrane of the collapsed blister. He discussed in full the two main classes of cases, viz.: those in which the eruption occurs on skin and mucous membrane at the same time; and second, those in which the eruption is confined to the mucous membranes alone, either of the mouth, nose, pharynx, larynx and conjunctiva, or any two or more of them. He noted its essentially chronic character, with poor prognosis as to cure, but comparative rarity of death.

As to treatment, he recommended principally care of the general health, and great care of the mouth and nose in the way of cleansing washes, with arsenic for internal medication.

PRIMARY ULCERATION OF THE TONSIL, TOGETHER WITH SOME REMARKS ON TONSILLAR ULCERATION IN GENERAL.

Dr. Thomas J. Harris of New York presented this paper, basing his discussion on the following classes of primary ulceration:

(1) Membranes — ulcerative tonsillitis — the so-called angina of Vincent.
(2) Acute lacunar ulcerative tonsillitis.
(3) Pseudo-diphtheritic ulceration.
(4) Gangrene of the tonsil.
(5) Syphilis.
(6) Tuberculosis.

He described the various clinical forms found under these heads, with the bacteriological findings; and the symptoms. He called attention also to the *secondary* ulceration so frequently found on the tonsil, due to diphtheria, typhoid, tuberculosis, lupus, syphilis (both primary, secondary and tertiary), and malignant disease, and the differential diagnosis between those and the primary ulcerations. In conclusion the author summed up by noting:

(1) The value of bacteriological examination.
(2) The occurrence of the primary ulcerations, which may be mistaken for the graver secondary forms due, *e. g.*, to diphtheria or syphilis.
(3) The almost irreparable harm which may result to the patient from a false diagnosis of syphilis.

BONE AND CARTILAGE IN THE TONSIL.

Dr. James E. Newcomb of New York presented a paper with this title. His attention had been called to the condition by the reports of a few cases pre-

viously published, and two years ago he had seen one case in his own practice.

In removing a tonsil in a woman about thirty years of age, a hard body was cut through, and examination of the tonsil showed that the body was the tip of the styloid process of that side. The other side of the same patient showed nothing abnormal.

Such cases were, perhaps, of greater interest than importance, yet irritation might result if sufficient soft tissue did not pad the stump left in the tonsil. His own patient had suffered no inconvenience, though the stump was easily perceptible on palpation. He spoke of the two theories as to origin of these bony and cartilaginous deposits in the tonsil; one, that they were vestigial rests of the second bronchial arch; the other, that they were due to a metamorphosis of connective tissue. He presented a summary of the comments on these two views by various writers, with brief reports of published cases.

LUPUS OF THE PHARYNX AND NASO-PHARYNX TREATED BY X-RAYS.

DR. HERBERT S. BIRKETT of Montreal read a paper with this title, reporting in full this history of one case, as cured by use of the x-rays. The patient was a boy of fifteen years of age; he had occupied a room in which a brother had died of tuberculosis; he had enlarged lymph nodes in the neck. He complained only of difficult nasal respiration. Was robust and healthy in general appearance.

The lesions were two distinct masses on lateral and posterior walls of the pharynx, extending to vault of naso-pharynx, with considerable surrounding infiltration, but not involving the pillars of the fauces nor the tonsils, and not extending into the posterior nares.

The bulk of the growths was removed by forceps, the surface curetted and rubbed with lactic acid, and as after some time the lesion did not heal, it was then treated with the Röntgen rays. The author then detailed the technique of the x-ray treatment, extending from April, 1903, to July, 1903, "when the local condition in the throat had entirely disappeared." A small area of the same disease appeared in February, 1904, on the anterior part of the cartilaginous septum, which the author claimed to be a *new* area, and not an extension of the lesion from the old infected part. This is now under treatment and yielding rapidly to the same measures used in treating the former site of invasion.

The following papers were read by title:

SUB-MUCOUS OPERATIONS ON THE NASAL SEPTUM; NO PERFORATION — THE END IN VIEW; REPORT OF CASES.

By DR. ROBERT C. MILES, New York.

BRONCHOLITHS, WITH REPORT OF CASES.

DR. D. BRADEN KYLE of Philadelphia presented this paper, speaking of the comparative rarity of the cases, and the fact that diagnosis was seldom made until the concretion was expectorated, and that many stones were found post-mortem, having caused no symptoms during the life of the patient. The majority of cases, however, show symptoms often attributed to tuberculosis, asthma, chronic bronchitis, infection, etc., those symptoms being usually cough, generally paroxysmal, expectoration, pain and general uneasiness, dyspnea, and occasionally hemoptysis. The only pathognomonic symptom is, of course, the expulsion of one or more stones. The author detailed various theories as to the origin and formation of the stones, observed that while they have probably been observed most frequently in tuberculous subjects, they do occur in the non-tuberculous, who after expulsion of the stone become entirely well and remain free from any pulmonary or bronchial irritation, and gave a history of a case demonstrating the last statement.

SUB-GLOTTIC TUBERCULAR LESIONS OF THE LARYNX.

DR. T. A. DEBLOIS of Boston presented this paper, giving the histories of two similar cases in which a tubercular lesion, when first seen apparently an abscess, and later a distinct ulcer, was present on the anterior wall, about one inch below the cords.

These cases both occurred in patients already well advanced in pulmonary tuberculosis, and the laryngeal involvement was undoubtedly secondary to the pulmonary lesion. Both cases resulted in death.

At the executive session of the meeting, the following gentlemen were elected as members: To corresponding fellowship, Prof. B. Fraenkel, Berlin; to active fellowship, Dr. T. Passmore Berens, New York City, Dr. John M. Ingersoll, Cleveland, O., Dr. Harris P. Mosher, Boston, Mass.

The following officers were elected for the ensuing year: President, Dr. Clarence C. Rice, New York; first vice-president, Dr. Thomas Hubbard, Toledo, O.; second vice-president, Dr. Walter J. Freeman, Philadelphia; secretary and treasurer, Dr. James E. Newcomb, New York; librarian, Dr. J. H. Bryan, Washington, D. C.; members of council, Dr. D. Bryson Delevan, New York, to serve for three years, Dr. J. H. Hartman, Baltimore, Md., to serve for four years.

The date and place for the next meeting was left to the decision of the council.

An amendment to the constitution was adopted, increasing the active fellowship from 75 to 100.

Recent Literature.

The Practice of Medicine. A Text Book for Practitioners and Students with Special Reference to Diagnosis and Treatment. By JAMES TYSON, M.D., Professor of Medicine in the University of Pennsylvania and Physician to the Hospital of the University; Physician to the Pennsylvania Hospital, etc. Third edition thoroughly revised and in parts rewritten. With 134 illustrations, including colored plates. Philadelphia: P. Blakiston's Son & Co. 1903.

The first edition of Dr. Tyson's "Practice of Medicine" appeared in 1896. This edition, the third, retains the original good features and has been brought up to date, incorporating the changes in theory and practice of the last few years. The chapters on infectious diseases are those in which the most numerous changes occur, but there has been a careful revision by Dr. W. G. Spiller of the section on nervous diseases and by Dr. Simon Flexner of dysentery. The entire book has been reset.

Consumption a Curable and Preventable Disease. By Lawrence F. Flick, M.D. David McKay, Publisher. Philadelphia.

The name of the author who has done such great work in the crusade against tuberculosis would ensure the earnest attention of readers to anything appearing from his pen.

The present work is written for the general public, and is written in a popular manner and contains much that will be of interest and practical value to the public at large. If the style is to the critic somewhat redundant and rather more figurative than seems necessary or wise, that fact may be lost sight of in the recognition of the undoubted merits of the book.

A few of his statements, however, will doubtless be challenged and we believe with justice, especially when, at the end of Chapter XXXVI, he makes the very sweeping assertion that "climate in itself is of little value in the treatment of consumption," that "it is the outside air which counts" and that "it *makes very little difference where this outside air* is gotten from, so it is gotten every day and all the day and night."

That his teachings stand for as fresh air as possible, wherever the patient may be every hour of the twenty-four, is highly to be commended, but that it should be claimed that the vitiated air of cities can be compared with the pure air of the country as an efficient remedy for tuberculosis strikes us as most extravagant and unwarranted and liable to mislead. His Chapter XXIV entitled, "Should Consumptives Marry?" impresses us also as claiming altogether too much in his statement that "immunity gradually comes to those in whose ancestry the disease has existed." While there are doubtless thousands of people apparently free from tubercular taint whose ancestors have been tuberculous, it seems to us that we are hardly justified in drawing the conclusions he makes upon such grounds. Such sentences, too, as "Many a young consumptive mother gets her shroud shortly after she has purchased the christening frock for her babe," and again, "Many a young man has sacrificed his chances of recovery on the altar of Hymen," while containing wholesome truths, strike us as lacking the simplicity of statement which is the most convincing form of argument.

Apart from these blemishes, as they seem to the critic, the book will do good and deserves a wide reading.

La Separation de l'Urine des Deux Reins. Par Georges Luys, Assistant du Service des Voies Urinaires à l'Hôpital Lariboisiere. Préface par Henri Hartmann, Professeur Agrégé à la Faculté, Chirurgien de l'Hôpital Lariboisiere. Avec 55 figures dans le texte. Paris: Masson et Cie., Editeurs, Libraires de l'Academie de Médecine, 120 Boulevard Saint-Germain. 1904.

This small book of about three hundred pages is most attractive to one at all interested in the urinary organs, and it is especially instructive to one wishing to know the evolution of the mechanical appliances for obtaining the urines from each kidney separately. Luys has perfected a very simple device for the separation of the urines. He finds that the apparatus is of very great practical value. Prof. Henri Hartmann, as well as Luys himself, has operated many times, assisted by the evidence which the use of this instrument affords, and he has demonstrated that the instrument is of great service.

In the first chapter Luys considers the necessity for the separation of the urines of the two kidneys. In the second chapter he describes the several methods hitherto employed for obtaining the urine from each kidney. In Chapter III the method of compression of one ureteral orifice is related. A description of the technique of ureteral catheterization and a criticism of the procedure is set forth. Chapter V describes different methods of separating the urines. Among these methods are those of Lambotte, Newman, Harris, Donnes, Cathelin, Jaboulay, and finally, the technique of the Luys apparatus is dwelt upon and a description of various experiments upon the cadaver is given. In Chapter VI Luys recounts why he thinks that the intravesical separation of the urine is advantageous as compared with the catheterization of the ureters. He bases the advantages upon physical, physiological and mechanical grounds. Chapter VII, the concluding chapter, is largely occupied by illustrative cases, recorded in considerable detail.

The book will well repay careful reading. The apparatus is simple, easily handled and apparently, with very few exceptions, efficient. The apparatus is made in this country by the Kny-Scheerer Company of New York.

The Luys separator consists of a staff, curved somewhat like a urethral sound, made up of three portions. The middle portion is a thin, solid metallic shaft, flattened from side to side. On each side of this, and completing the rounded staff, is a metal catheter almost semicircular in section. The two catheters upon their concave border of the curved portion have small openings into which the urine trickles — the two catheters applied to the central staff making a single instrument corresponding in size to a No. 21 French bougie. A little chain stretches across the concavity of the instrument, manipulated by a screw in the handle. This chain when not taut rests between the two catheters. The staff is covered with a rubber cot. After being introduced, the chain having been made taut, raises the rubber as a septum, filling the whole of the concavity of the curve of the instrument. The urine collecting on either side of the instrument trickles into the little holes in the silver catheters, and is collected at the distal end in separate tubes. The tricks of using the instrument are few, and after an occasional use of it are apparent. The convexity of the curved portion of the instrument is shaped to fit the floor of the bladder between the two ureters and the internal meatus of the urethra when the patient is in the semi-sitting position. The instrument is ordinarily used without an anesthetic. C. L. S.

The Internal Secretions and the Principles of Medicine. By CHARLES E. DE M. SAJOUS, M.D., Fellow of the College of Physicians of Philadelphia. Formerly Lecturer on Laryngology in Jefferson Medical College and Professor of Laryngology and Dean of the Faculty in the Medico-Chirurgical College. Volume I. With forty-two illustrations. Philadelphia: F. A. Davis Company. 1903.

Undeterred by the quoted words of Virchow, that "medical men are tired of the many new hypothetical systems that are thrown aside as rubbish only to be replaced by similar ones," the author in an octavo volume of seven hundred and eighty-eight pages presents an elaborate hypothetical conception of physiological and pathological processes.

In the construction of this work, fact and fancy are inextricably interwoven. In the preface the author states that "what we have said of the physiological chemistry of glycogen, myosinogen, urea and many other bodies, may not stand the scrutiny of an Ehrlich, a Gautier, an Abel, a Chittenden, a Vaughan; but the fact that such men are available to correct promptly what errors we might have made gave us confidence to proceed with our work without undue anxiety."

The author presents a great mass of data which he has collected from the writings of the leading investigators in anatomy, physiology and chemistry. From these collected observations surprising deductions are made by the author in support of his hypothesis. An idea of the nature and value of the work can best be given by a few excerpts.

The adrenals are considered as the key to tissue-respiration and also to the function of all organs now classed as ductless glands. "The secretion of the adrenals was traced as far as the pulmonary alveoli, but not beyond. Here it was found to hold in combination the various constituents of hemoglobin, and to endow both the latter and the plasma with their affinity for oxygen. Prevailing views as to the chemistry of respiration were thus radically transformed and our knowledge of the manner in which the blood-pigments were held together likewise." According to Sajous, contraction of the heart-walls is in great part due to oxygen-laden adrenal secretion. The adrenals are stated to be directly connected with the anterior pituitary body. "Indeed, this diminutive organ, hardly as large as a pea, and now thought to be practically functionless, proved to be the most important organ of the body, as governing center of the adrenals, and, therefore, of all oxidation processes. In general diseases what has been termed the patient's 'vitality' or 'vital resistance' thus becomes ascribable to fluctuations in the anterior pituitary body's functional efficiency. Symptoms of infection or poisoning are all manifestations, more or less severe, of overactivity or insufficiency of the adrenal system." The posterior pituitary body "proved to be the chief functional center of the nervous system." The pancreas and spleen are considered together, as "the secretions of these two organs unite in the formation of trypsin. A portion of the ferment passes into the splenic vein as an internal secretion and plays a leading part in all immunizing processes."

The Ehrlich's theories are greatly simplified by Sajous. The amboceptor is oxygen laden adrenal secretion and the complement is nothing more than trypsin. "The dominant active principle of antitoxin proved to be trypsin."

"The white corpuscles of the blood were found endowed with functions greatly exceeding in importance any as yet ascribed to them, even hypothetically. . . . Ehrlich's eosinophiles, non-phagocytic leucocytes asserted their identity as daughter cells, the separation from their parent cells, the neutrophiles, occurring in the liver by mitosis. They were traced to the pulmonary alveoli, where they participated in the formation of the nucleated epithelium. Their product proved to be hemoglobin."

This book has been reviewed in terms of praise by some of our leading medical periodicals. The publication of such works and their favorable review in representative journals will tend to discredit American medicine in the eyes of the scientific world.

AMERICAN EDITION OF NOTHNAGEL'S PRACTICE.

Diseases of the Intestines and Peritoneum. By DR. HERMANN NOTHNAGEL, of Vienna. Edited, with additions, by HUMPHREY D. ROLLESTON, M.D., F.R.C.P., Physician to St. George's Hospital, London, England. Authorized translation from the German, under the editorial supervision of ALFRED STENGEL, M.D., Professor of Clinical Medicine, University of Pennsylvania. Octavo volume of 1032 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

This new volume in Saunders' American edition of Nothnagel's Practice is the eighth to be issued, and appearing within two months after the publication of the volume on Tuberculosis, gives evidence that the publishers intend completing the series at an early date. This, one of the most valuable volumes in the series, is by the famous clinician Dr. Hermann Nothnagel himself, and is as exhaustive as it is practical. The distinguished editor, Dr. Humphrey D. Rolleston, of London, England, has used his pen most profusely, almost every page giving generous evidence of his careful editing. The editorial additions include sections on Intestinal Sand, Sprue, Ulcerative Colitis, and Idiopathic Dilatation of the Colon. Appendicitis and Peritonitis have been given unusual space, treatment and diagnosis receiving exhaustive consideration. The section on Intussusception has been greatly enlarged by the invaluable additions of D'Arcy Power of England, who has made this subject his own. There are 20 inserts of great merit.

The present volume is an important one, and after passing from the hands of its distinguished author has received due care and attention from the English and American editors.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, SEPTEMBER 15, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published a Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for al foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

A HOSPITAL OBSERVATION LAW IN MASSACHUSETTS.

WITH the increasing complexity of social relations, it is inevitable that the questions relating to crime and insanity are likely to be more and more difficult of just settlement. To the end that the way may be as easy as possible both for the physicians and the courts, and that completest justice may be done the person charged with an offence, it is desirable that means of the most accurate observation during the pendency of a trial be provided.

In a recent paper, read originally in Boston and published in the last number of the *American Journal of Insanity*, Dr. Henry R. Stedman, on the basis of an important and confusing case of well-poisoning, expresses his views on the subject of a proper hospital observation law. The case itself does not particularly concern us at this time beyond the general fact that only after the last of many examinations was it possible to determine with assurance the actual insanity of the person charged with the crime. Taking this case as a text, and undoubtedly there are many like it, Dr. Stedman calls attention to the desirability of laws which will require that persons of this general character be under constant supervision in properly constituted hospitals for a sufficiently long time to determine their sanity or insanity. He holds that could such persons be under the eye and supervision of skilled alienists and of trained nurses, more prompt and accurate decisions could be reached and with less expense to the state than has hitherto prevailed. Three classes of persons he thinks would be affected by such a law, which he characterizes as follows:

(1) Patients who conceal their delusions. These cases are notoriously suspicious and persistently refrain from unburdening themselves to the examiners, so that many long interviews are often needed to gain their confidence sufficiently to elicit their false beliefs.

(2) Persistent feigning can also be far more easily and quickly detected under asylum conditions and surroundings than in jail, owing chiefly to the difficulty a prisoner experiences in keeping up the pretense of insanity uninterruptedly and consistently (as he must to be successful) where he is watched day and night by careful observers. Most malingering is, as we all know, bungling and readily exposed, but it is only with the utmost difficulty that really adroit feigning can be detected by the expert in occasional visits to the jail.

(3) Notorious capital cases. Here hospital observation as an adjunct to expert examinations must be of advantage in silencing popular clamor and alarm lest the prisoner escape just punishment through what is termed the "insanity dodge." The delay involved also tempers public opinion, as does the evident intent of thorough investigation shown in a term of hospital supervision.

The state of Maine has enacted a law of this sort which has been in successful operation for some years which has also been adopted by Vermont and New Hampshire. These laws provide that persons indicted for offences whose plea is insanity shall be ordered to the state hospital for the insane for observation. Such a law, in Dr. Stedman's opinion, is rather too sweeping in its provisions for the conditions as they exist in Massachusetts. The communities in this state are larger, and therefore a certain criminal element might be added to the atmosphere of insane hospitals which would be undesirable and a just cause for criticism. Removal to the asylum for the criminal insane is also manifestly unjust. Furthermore, the experts in Maine and New Hampshire are almost without exception members of the staffs of the state hospitals, whereas in this state many experts have no such connection with such hospitals. In view of these facts Dr. Stedman is of the opinion that provision should be made for "the occasional important and doubtful case only by enacting a law to the effect that at the request of the examining physicians the judge of the court before which a person is to be tried, for whom the plea of insanity is made, may order said person into the care of the superintendent of one of the state insane hospitals to be there detained and observed until further order of the court."

At the meeting of the Boston Society of Psychiatry and Neurology, held last November, where Dr. Stedman's paper was originally read, a committee, consisting of Drs. Folsom, Cowles, Channing, Jelly, Copp, Ayer and Stedman, was

appointed for the purpose of securing legislation. It is gratifying to note the fact that the efforts of this committee have resulted in the enactment of the following statute:

CHAP. 219, SECTION 11. "If a person under indictment for any crime is, at the time appointed for trial, or at any time prior thereto, found by the court to be insane, or is found by two experts in insanity designated by the court to be in such mental condition that his committal to an insane hospital is necessary for the proper care or for the proper observation of such person, pending the determination of his insanity, the court may cause him to be committed to a state insane hospital for such time and under such limitations as the court may order."

We have no question that this is a decided step in progress which should do much to obviate the undignified situations into which both physicians and the courts are often forced.

BOSTON CITY HOSPITAL REPORT.

THE report of our chief city medical institution is always a document of interest. This year the fortieth report brings the history of the hospital up to Jan. 31, 1904, and fills a pamphlet of 186 pages, embellished with two admirable charts of the hospital buildings and a number of illustrations in the text. The changes in the personnel of the staff during the past year have been numerous through promotions and resignations, as is natural in so large an institution, among the resignations being that of Dr. John C. Munro to take charge of the surgical department of the Carney Hospital. The office of physician for infectious diseases has been created, and Dr. J. H. McCollom, long identified with the South Department of the hospital, has been appointed consultant in such cases. The trustees in their report call attention to the fact that during the year the new out-patient building and a pavilion for the hospital have been completed, but, owing to lack of funds, the occupancy of these buildings has been temporarily deferred. When the new surgical out-patient building shall be occupied, it is proposed to renovate the building devoted to medical out-patients, and when this is done, the hope is expressed that there will be no demand for additional room for the out-patient service for several years. Speaking of the South Department, the trustees state that during the nine years it has been in commission it has treated 21,387 persons ill with some infectious disease. As the work of this beneficent department of the hospital has grown, the need of further accommodation for patients has become increasingly apparent. Difficulty, has, for example, been experienced through the mixed infections resulting from the classification of patients as at present necessitated. Many cases of measles have also been admitted, although there is no special building for this relatively innocuous disease. The trustees are perfectly aware of the need and are of the opinion that an additional building, at a probable expense of approximately $125,000, should be erected as soon as possible. The work of the pathological department, the trustees particularly commend, and make the following liberal statement regarding the necessity of a pathological laboratory and its appurtenances as an integral part of the modern hospital: "The trustees are very glad to co-operate in scientific research, believing it to be the duty of all first-class hospitals to aid to the utmost everything that furthers the advancement of medical science. Patients in a large, general hospital, having a well-equipped pathological laboratory, receive more scientific treatment, more careful investigation and professional study, and better nursing than in those without one. In fact, no hospital is complete to-day, without a laboratory conducted by skilful physicians and pathologists." This attitude of the trustees, as expressed in the foregoing statement, has done much to make the hospital what it is. Dr. Rowe's report as superintendent of the hospital covers adequately, as heretofore, points in administration and in general hospital development. A large part of the volume, as is usual, is taken up with medical and surgical statistics, which, as we have previously had occasion to remark, have been of very much increased value since the adoption of a systematic plan of classification. The report in general is an exemplification of a modern municipal hospital of the highest character.

A MEDICAL RECREATION SOCIETY.

IN a recent address as president before a New England medical society, Dr. E. R. Campbell of Bellows Falls made certain suggestions to which we wish to call attention. After discussing various matters of significance to practitioners everywhere, he drew his hearers' attention to the benefits of what he termed "the medical society habit." The medical society he regarded as a kind of post-graduate school, wherein the expression of diverse opinions might be made of practical value to physicians. He urged upon his hearers to make the medical society habit contagious, and hoped that the infection might spread to the seventy-seven thousand physicians

in the United States who are said to belong to no medical society whatever. We are heartily in accord with this opinion of Dr. Campbell, which, if not original, is certainly of the very first importance for the uniform development of our practitioners. The point, however, in his remarks to which we desire particularly to revert is what he terms a New England medical society, which shall act as a summer school of medicine in connection with a short vacation. He suggests that physicians leave their practices absolutely for a certain period to congregate at some point in the New England states where pleasure may be combined with a certain amount of literary work, urging that such an organization would prove to be not only of professional benefit, but conducive to much social pleasure and recreation.

Dr. Campbell's idea, as elaborated much more fully in his address, is one worthy of consideration. We have for a considerable time noted the tendency of combining with the somewhat heavy side of our medical meetings a degree of recreation which not many years ago would have been thought impossible. We note that the place of medical meetings is chosen with care to this end, and that the programs suggest not only attendance upon the meetings, but also possibilities of various quite extraneous amusements. This tendency we have always commended, and certainly, if Dr. Campbell's plan of instituting a society, which shall have as its professed aim recreation as well as profit, can be organized, it would fill a well-defined need. It is, however, a question whether it is not wiser to stimulate existent societies to a further recognition of the desirability of recreation rather than to constitute an entirely new one for that purpose. Our existent summer schools, as we have observed them, offer admirable opportunities for other pursuits than medical work in cities and towns well adapted for the frivolities, and this over a period of several weeks. In general, however, the development of the plan suggested is one to which we are glad to give our support.

MEETING OF SOCIETY OF CHEMICAL INDUSTRY.

In closing an address at the banquet given in honor of the Society of Chemical Industry at the Waldorf-Astoria on Sept. 8, Sir William Ramsay, President of the Society, made a statement which was regarded as of great significance by his auditors. It was as follows: "It seems to me that we may be on the eve of the discovery of the origin of the ordinary elements which may be the products of the breaking down of radio-active elements of high atomic weight." Among the distinguished foreign chemists present were Professors Oscar Leprecht of the University of Berlin, and Hugo Münsterberg, and Ostwald of the University of Leipsic. During the session of the society, Prof. Ira Remsen of Johns Hopkins University was presented with a gold medal for the most important discovery of the year in chemistry. At a business meeting Mr. Nichols of New York was elected president of the society for the ensuing year. This is the second time that the honor has been conferred upon an American, Prof. Charles Chandler of Columbia University having been the first of our countrymen to receive it.

MEDICAL NOTES.

Dr. E. L. Munson.— The following statement is made in the last report, which has come into our hands, of the Board of Health for the Philippine Islands: "The Board of Health has been unfortunate in losing the services of Dr. E. L. Munson, captain and assistant surgeon, United States Army, who, as Assistant to the Commissioner of Public Health, rendered very faithful and efficient service to the cause of sanitation in the Philippine Islands. Captain Munson's health became impaired by overwork, and he found it necessary to return to the United States for treatment. He had to leave undone many things which he had planned, but the work that he accomplished and the influence which he exerted upon the cause of sanitation in the Philippine Islands will remain as permanent testimonials to his zeal and knowledge." Dr. Munson has been a valued contributor to this Journal. We regret exceedingly to hear of his illness, which it is hoped may be benefited by a return to this country.

Wellcome Chemical Research Laboratory at St. Louis. — Among the exhibits in St. Louis of importance for medical men are two, numbered 14 and 15 respectively, in the British section, illustrative of the work being done by the Wellcome Chemical Research Laboratories and the Wellcome Physiological Research Laboratories in London. The work undertaken in these laboratories — founded by Mr. Henry S. Wellcome in the year 1896, and since then under the direction of Dr. Frederick B. Power — has been of a most varied character and wide range, representing almost every department of chemical and phar-

maceutical science. The investigations have comprised, for example, the devising of new methods of analysis, the examination of drugs of reputed medicinal value from distant lands, Africa, India, and the Fiji Islands, as well as those indigenous to Europe and North America, in order to determine both the nature of their active chemical constituents and their pharmacognostical characters; the study of the constituents of various essential oils; the constitution of some of the more important alkaloids and other chemical substances of special therapeutic value; and the preparation of new chemical compounds by synthetic methods, both chemical and electrolytic.

MEDICAL PROGRESS IN THE PHILIPPINES. — The following statistics taken from a recent monthly report of the Board of Health for the Philippine Islands gives one an idea of the vigorous sanitary and medical work going on there.

In the work of sanitary inspections there were 5,302 inspections and reinspections of houses during one month, 329 houses were cleaned as a result of sanitary orders, 35 whitewashed or painted, and 95 disinfected. A total of 669 yards were cleaned and placed in good sanitary condition. There were 32,409 rats destroyed in the prophylactic measures against plague. Two hundred and sixteen thousand seven hundred and sixty-five units of vaccine virus were issued, and 13,251 vaccinations were performed in the city of Manila. During the month Dr. Edward L. Munson, captain and assistant surgeon, U. S. A., who was detailed to this office as assistant to the Commissioner of Public Health, prepared and put in operation a comprehensive and carefully prepared plan which has for its purpose the vaccination of all the inhabitants of the Philippine Islands. If the work as outlined is carried out it is hoped that smallpox will play little part in the reports of infectious diseases of the future. A veterinary division was established which will have direct charge of all matters pertaining to veterinary medicine and surgery throughout the Philippine Islands. Dr. Munson has since returned to the United States.

CANDIDATES FOR STATE REGISTRATION. — It is announced that eighty-eight candidates have taken the September examination for registration in medicine in Massachusetts. This is regarded as a large number for this time of the year, but a considerable proportion are candidates for re-examination. Announcement of successful candidates will be made the latter part of this month.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Sept. 14, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 47, scarlatina 2, typhoid fever 50, measles 1, smallpox 0.

NEW YORK.

PREVENTION OF SUICIDE. — At a meeting of the Board of Health held Sept. 7, an amendment made by the Board was announced which will, no doubt, have a salutary effect in the prevention of suicide. This ordinance forbids the sale of carbolic acid, when in a stronger solution than 5%, except when ordered in a physician's prescription.

ARRIVAL OF PROFESSOR ORTH. — Prof. Johannes Orth, the successor of Virchow at the University of Berlin and consultant in the operations performed some time ago on Emperor William's throat, arrived by the steamship "Zeeland" on Sept. 5. He was met at the dock by Prof. Thomas Cullen of Johns Hopkins University and Dr. Paul M. Pilcher of Brooklyn, two of his former pupils.

UNIQUE ESCAPE FROM DEATH. — By the prompt action of Joseph McSweeney, a tenement house inspector, the lives of two men were recently saved in the Brownsville district of Brooklyn. They were Italians engaged in making an excavation upon whom a great mass of loose earth had fallen, and McSweeney, with the help of some workmen, succeeded in getting down to them a piece of rubber hose which had been used as a water pipe in mixing mortar near by. By this means they were supplied with air until their rescue could be effected.

NEW PAVILION, ST. MARY'S HOSPITAL. — The new pavilion of St. Mary's Hospital at Jamaica, Borough of Queens, was opened on Sept. 5, with appropriate ceremonies. It is built of brick and stone, 116 by 34 feet, and has three stories and a basement. Its cost was $75,000, and it is stated to be the finest hospital structure on Long Island, outside of Brooklyn. It affords accommodation for seventy-five patients, and the site allows for two other pavilions to be erected in the future. The total capacity will then be three hundred.

ATHLETIC EXHIBITION. — On Aug. 31, eight hundred young athletes, some of the boys and girls who for two months had made up the classes in the Board of Education's great summer playground school, gave an admirable exhibition in the grounds located under the Manhattan

end of the new Williamsburg bridge over the East River. Mr. Evert Jansen Wendell, who is still remembered as a distinguished sprinter at Harvard, acted as the judge of the various events. On Aug. 30 a playground, exclusively for girls, the first in the history of the city, was opened in Tompkins Square. This playground, which occupies an acre and a half, has been equipped at an expense of $700 and is to be open throughout the year.

A Public Athletic Field. — A large athletic field, provided by the city, was opened to the public on Sept. 10, by Mayor McClellan in the presence of 30,000 spectators. It is located in Pelham Bay Park, in the Bronx, and consists of 120 acres, twenty acres of which are devoted to a parade ground. It also includes ample bathing and boating accommodations on Long Island Sound. A feature of the undertaking is an emergency hospital tent, where prompt surgical aid will be afforded to persons injured in the park. The credit for the whole scheme is largely due to Mr. William P. Semidt, Park Commissioner of the Borough of the Bronx, who raised $8,000 by personal subscription among his friends to defray the expense of the opening ceremonies, which included medals for a large number of athletic events.

Quarterly Death Statistics. — The condensed quarterly report of the Bureau of Records of the Health Department, just issued, shows that the number of deaths for the second quarter of 1904 was 21,100. This mortality, on an estimated population of 3,838,024, gives a death-rate of 22.08 per thousand, as compared with an average number for the same quarter of the five preceding years of 16,919 deaths; which, on an estimated population of 3,540,664, gives a death-rate of 19.15, an increase of 2.93 points. The principal causes of this increased death-rate are regarded to have been: (1) The effect of the protracted measles epidemic, which, beginning in December, 1903, did not diminish in severity until the early part of June, thus increasing the number of deaths from acute respiratory diseases; (2) the prevailing influenza, furnishing considerably above its average quota of deaths, as reflected in the unusually large mortality from pneumonia, Bright's disease, and pulmonary tuberculosis; (3) a severe epidemic of cerebrospinal meningitis, showing itself in the month of March and continuing throughout the quarter; and (4) the "Slocum" disaster, in which over 900 lives were lost. The increased number of deaths occurred at all ages, among children under five years, adolescents, adults and old people.

Miscellany.

THE NEW SURGICAL BUILDING OF JOHNS HOPKINS HOSPITAL.

According to the New York *Medical Journal*, elaborate preparations are being made for the dedication of the new surgical building of the Johns Hopkins Hospital on the morning of Oct. 5. The structure is now practically ready for occupancy.

The building cost about $150,000, is of brick, has four stories, and is believed to be admirably adapted for teaching. Sanitation and ventilation have been important considerations in every feature of the structure. All the floors are of tiles, every room and hallway used by patients being also wainscoted with glazed white tiles as high as a man can reach. The stairways are of marble and iron, and there are fine toilet rooms and baths on every floor. A surgical amphitheatre forty feet high also has extensive tiling, marble work, and a hall, with wide lights, composed entirely of wired glass. There are a number of rooms for consultation. The principal feature of the building is the surgical amphitheatre, which is situated on the third and fourth floors. There the operations which are watched by the medical students will be performed. The conical incline with the seats is composed entirely of tiles and marble. The parapets in front of the seats are white enameled sheets of steel supported by narrow iron stanchions, and the seats are supported by iron bars from these plates. In order to cleanse the room all that is necessary is to turn on the hose and the incline carries the water to the bottom of the amphitheatre, where it is run into a drain. The amphitheatre is entered by the students at the fourth floor. The operating rooms, which open into the bottom of the amphitheatre, are at either side on the third floor. There are two operating rooms, in both of which a superior system of heating and ventilation is installed. The air enters the shaft from the outside and is conducted to a box in the room containing the radiators. From the radiators the air escapes gradually to the room through a metal mesh, or filter, and thus a draft of air upon the patients is prevented. On the third floor there are also waiting rooms for the patients in beds, washing rooms, dressing rooms for the surgeons, and preparing rooms. There is a room for surgical pathology and a private office for Professor Halsted, head of the surgical department. On the second floor there are a number of smaller apartments which will be used as consulting rooms on the surgical cases, each room or suite of rooms being furnished with handsome toilet sooms and baths. Here, too, is a surgical lecture room, a large, fine auditorium which will be used by Dr. Halsted and his assistants in addressing the surgical classes. On the first floor, which is entered from Monument Street, will be emergency rooms for accident cases, minor operation rooms, the orthopedic department, and the fine clinical lecture rooms, over which Dr. William Osler presides. This latter room is said to be one of the finest lecture rooms connected with any medical institution. Like the surgical amphitheatre, it is from thirty-five to forty feet high, and will be lighted on the north side by long windows. It can be entered from the first and second floors. The patients brought to the operating rooms from the hospital must be carried to the third floor of the surgical building, and for this purpose a hydraulic elevator of special construction has been installed. The surgical records are to be placed for storage in two fire proof vaults.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 3, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Diarrheal Diseases.
New York . .	3,908,644	1,274	518	36.89	8.31	2.20	1.02	18.91
Chicago . . .	3,021,086	491	164	34.40	12.42	1.22	1.83	17.51
Philadelphia	1,407,968	371	131	32.67	5.67	.81	2.70	15.39
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	543,229	184	65	39.67	2.71	1.08	3.26	17.93
Cleveland . .	444,331	—	—	—	—	—	—	—
Buffalo . . .	409,545	—	—	—	—	—	—	—
Pittsburg . .	362,403	92	—	35.87	3.26	5.43	5.43	15.22
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	335,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	57	23	36.83	4.35	5.26	1.75	21.04
Boston . . .	617,950	199	77	31.15	3.52	1.51	2.01	18.59
Worcester . .	136,925	37	15	24.32	5.40	8.10	—	18.91
Fall River . .	119,349	28	14	50.00	10.71	—	—	32.13
Lowell . . .	104,402	27	11	29.62	—	—	3.70	18.51
Cambridge . .	100,998	22	12	36.36	4.54	—	4.54	22.72
Lynn	73,875	26	6	23.07	3.85	—	—	11.53
Lawrence . .	72,348	17	9	41.17	11.76	5.88	—	29.41
Springfield .	72,020	22	7	22.72	—	—	—	13.63
Somerville . .	70,413	13	2	15.40	7.70	—	—	7.70
New Bedford	68,863	29	17	51.72	6.90	3.44	—	41.37
Holyoke . . .	50,358	18	10	50.00	5.55	—	—	27.77
Brockton . .	46,901	17	4	11.76	—	—	—	—
Newton . . .	39,310	13	3	—	—	—	—	—
Haverhill . .	39,061	3	—	33.33	—	—	—	—
Malden . . .	37,205	5	3	80.00	—	—	20.00	60.00
Salem	37,188	11	7	27.27	—	—	—	27.27
Chelsea . . .	36,499	13	10	—	—	—	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	12	6	58.31	8.33	—	—	50.00
Everett . . .	30,209	2	—	—	—	—	—	—
North Adams	29,201	12	6	33.33	—	—	—	25.00
Quincy . . .	26,798	7	5	71.50	—	—	—	57.20
Gloucester . .	26,121	—	—	—	—	—	—	—
Waltham . .	25,797	10	4	40.00	—	—	—	20.00
Brookline . .	25,576	1	—	—	—	—	—	—
Pittsfield . .	22,870	12	3	25.00	8.33	—	—	16.67
Medford . .	21,956	6	2	33.33	—	—	—	33.33
Chicopee . .	21,692	6	5	33.33	16.67	—	—	33.33
Northampton	20,314	—	—	—	—	—	—	—
Beverly . . .	15,807	4	—	25.00	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	3	0	33.33	—	—	—	—
Adams . . .	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	4	—	50.00	—	—	—	25.00
Hyde Park .	14,500	3	1	33.33	—	—	—	—
Newburyport	14,478	10	4	30.00	—	—	—	30.00
Woburn . . .	14,315	7	3	14.30	—	—	—	14.30
Melrose . . .	13,819	2	1	—	—	—	—	—
Westfield . .	13,809	2	—	50.00	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	1	0	100.00	—	—	—	—
Revere . . .	13,809	4	1	25.00	—	—	—	—
Framingham	13,974	3	0	—	—	—	—	—
Peabody . .	13,406	—	—	—	—	—	—	—
Gardner . . .	13,324	3	1	33.33	—	—	—	—
Southbridge .	11,716	1	—	50.00	—	—	—	—
Watertown .	11,575	5	1	—	20.00	—	—	—
Weymouth .	11,350	3	1	—	—	—	—	—
Plymouth . .	11,189	—	—	—	—	—	—	—

Deaths reported, 3,092; under five years of age, 1,152; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,083; acute lung diseases 184, consumption 360, scarlet fever 14, whooping cough 15, cerebrospinal meningitis 12, smallpox 1, erysipelas 2, puerperal fever 4, measles 4, typhoid fever 51, diarrheal diseases 567, diphtheria and croup 53.

From whooping cough, New York 5, Chicago 3, Philadelphia 2, Baltimore 1, Pittsburg 2, Boston 1, Lynn 1. From measles, New York 3, Pittsburg 1. From scarlet fever, New York 5, Chicago 3, Philadelphia 1, Baltimore 4, Pittsburg 1. From cerebrospinal meningitis, New York 10, Chicago 1, Worcester 1. From erysipelas, Philadelphia 2. From smallpox, North Adams 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Aug. 20, the death-rate was 22.7. Deaths reported 6,639; acute diseases of the respiratory organs (London) 40, whooping cough 79, diphtheria 39, measles 130, smallpox —, scarlet fever 26.

The death-rate ranged from 7.8 in Kings Norton to 39.1 in Liverpool; London 21.6, West Ham 28.0, Brighton 17.3, Plymouth 17.8, Bristol 16.0, Birmingham 24.4, Leicester 21.2, Nottingham 23.9, Bolton 16.9, Manchester 26.9, Salford 32.1, Bradford 17.0, Leeds 23.5, Hull 29.0, Sheffield 22.4, Cardiff 17.2, Rhondda 30.7, Merthyr Tydfil 20.1, Swansea 27.7, Wigan 34.0, South Shields 17.0.

METEOROLOGICAL RECORD.

For the week ending September 3, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. 28	30.06	68	81	56	69	61	66	W	S W	8	11	C.	C.	0
M. 29	29.98	72	82	61	69	47	58	S W	N	11	12	O.	C.	0
T. 30	30.20	60	64	55	58	78	68	N E	S E	7	8	C.	C.	0
W. 31	30.23	64	73	56	67	68	68	S W	S E	7	4	O.	C.	0
T. 1	30.36	64	72	56	75	75	75	N E	S	4	11	O.	O.	0
F. 2	30.12	70	79	62	78	82	80	S W	S	14	12	O.	C.	0
S. 3	30.04	76	85	68	78	84	81	S W	S	9	10	C.	C.	0
☞	30.13		77	59			71							0

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING SEPTEMBER 10, 1904.

J. F. URIE, surgeon. Detached from the "Missouri" and granted sick leave for three months.

N. H. DRAKE, surgeon. Detached from the "Lancaster" and ordered to the "Hancock."

M. S. GUEST, passed assistant surgeon. Ordered to the "Lancaster."

C. M. DEVALIN, passed assistant surgeon. Unexpired portion of leave revoked; ordered to duty at the Naval Hospital, Philadelphia, Pa.

THE BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheatre of the Boston City Hospital on September 16th, from 10 A.M. until 12.30 P.M.: Carcinoma Breast; Tumor Breast; Tuberculous Peritonitis; Breast Abscess; Inguinal Adenitis; Inguinal Hernia; Interval Appendix.

RECENT DEATHS.

EDWARD P. BUFFET, M.D., of Jersey City, died on Sept. 9, of cardiac disease. He was born in Smithtown, Long Island, of Puritan ancestry, Nov. 7, 1833, and was graduated from the College of Physicians and Surgeons, New York, in 1858.

JOHN T. BROSNAN, M.D., of Brooklyn, N. Y., died on Sept. 9, after a long illness, at the age of thirty-five. He completed his collegiate education at St. Francis Xavier College, New York, and was graduated from Bellevue Hospital Medical College in 1893.

BOOKS AND PAMPHLETS RECEIVED.

Clamp and Cautery in Appendectomy. By Joseph Rilus Eastman, M.D. Reprint.

Tuberculosis of the Urinary Tract. By Edgar Garceau, M.D. Reprint.

A Handbook of Pathological Anatomy and Histology, with an introductory section on Post-mortem Examinations and the Methods of Preserving and Examining Diseased Tissues. By Francis Delafield, M.D., LL.D., and T. Mitchell Prudden, M.D., LL.D. Seventh Edition. Illustrated. New York: William Wood & Co. 1904.

Clinical Lectures on Mental Diseases. By T. S. Clouston, M.D. Edin., F.R.C.P.E. Sixth Edition. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1904.

The Prevention of Typhoid Fever. A Paper Presented at the One Hundred and Twelfth Annual Meeting of the Connecticut Medical Society, May 26, 1904. By William G. Daggett, M.D. Reprint.

A Medico-Legal Case of Well-Poisoning, with a Plea for a Hospital-Observation Law. By Henry R. Stedman, M.D. Reprint.

The Student's Handbook of Surgical Operations. By Sir Frederick Treves, Bart., K.C.V.O., C.B., LL.D., F.R.C.S. New Edition. Revised by the Author and Jonathan Hutchinson, Jun., F.R.C.S. Illustrated. (Abridged from the Author's "Manual of Operative Surgery.") Chicago: W. T. Keener & Co. 1904.

Address.

THE TENDENCIES OF THE PRACTICE OF MEDICINE AS A PROFESSION AND AN ART.*

BY LEWIS M. PALMER, M.D., SOUTH FRAMINGHAM, MASS.

MR. PRESIDENT AND MEMBERS OF THE SOCIETY:

Knowing too well that I have no special knowledge on any medical or surgical subject that would justify me in asking your attention for an hour to-day, I have chosen for a theme, "The Tendencies of the Practice of Medicine as a Profession and an Art." I do not expect to instruct you, for I have no instruction to give. I shall emulate Mark Twain, where he says in one of his prefaces that he should try and impart no knowledge, but if he failed it would be because, under great pressure, he leaked some, in spite of his efforts to the contrary. I shall measure my success by the times I see you look at your watches, or the clock, to see how much longer it is before the time of the real object of this meeting, "the dinner."

After a quarter of a century of study and practice of our noble profession, I am ready to say, with a partial knowledge of failures, weaknesses, and limitations, that it is the noblest profession of all. I would not for a moment belittle the profession of the minister of God. No higher ideal can be conceived than to be a beloved pastor of a people, leading them by example and precept to a higher plane of thinking and living. We all of us, perhaps, have had occasion, in some inexplicable tragedy of life, to turn to him for some words of comfort, or hope or cheer, and we remember with gratitude what he has been to us and done for us. But when I remember what travail of soul, worriment of mind, and physical strain it has caused me to write one sermon, on which I had a whole year's time, I have tried to imagine what the strain and work must be to grind out two sermons a week on the same great theme, and always have them new and fresh and interesting, and not too pointed about personal shortcomings.

A prominent lawyer friend of mine says he thinks he could write about four good sermons, and after that he should be entirely pumped dry. No, friends, high and noble as is the calling of a minister, I think I prefer to it the carping and unreasonable criticism of ignorant patients, or be amused by the untellable things that occur in every busy doctor's life.

While much in the legal profession is high and noble, it seems to me that far too much of its work consists of making and fostering needless strife between man and man, to make it desirable. It is supposed to deal with right and justice and equity, but its noble ideals are besmirched by the quack of the legal profession, the pettifogging lawyer, who scents accident and trouble as the buzzard does the carrion, and like him, ever hovers about. More than once, in time of accident, have we had difficulty in our little Framingham Hospital, in keeping out these legal buzzards, and I have often wondered what would be said of us as doctors if, in like manner, in time of accident, we were to rush to these poor unfortunates and say, "Employ me, employ me, and I will save you."

My attention has been recently called by an eminent judge to another remarkable difference between the legal and medical professions. He says: "You, as doctors, are always looking ahead for the new thing, scientific fact, or discovery, while we lawyers and judges are always looking backward, hunting after a precedent." I think I prefer the profession that looks ahead for better things, instead of looking backward, banking on the wisdom of ancestors.

An ancient scholar has this exalted praise for the physician: "Man in nothing comes nearer to the gods than in giving health to his fellow-mortals." In the advance of civilization, and the wonderful progress of scientific knowledge along all lines of human thought, in none has there been a more wonderful result seen than in medical, and especially surgical, knowledge. As we like to revisit places that we have seen many, many times because of their associations, or read and reread a beautiful poem because it expresses a tender sentiment in language which appeals to our experience, or as we love to hear again and yet again the same old melodies, and be carried for the time being beyond our narrow, sordid lines by the harmonies of some of the symphonies or oratorios of the old masters, so do we enjoy hearing the story of the progress of medical thought from the mysticism and superstitions of former times to the present so-called scientific age. But with all this wonderful advance, and with all our boasted knowledge, it seems to me that in some respects we as practical physicians, seeking all possible sources of aid, are woefully deficient.

We live in an age of materialism. We are attempting to account for all conditions and manifestations on a material basis. We glory in the fact that everywhere are springing up, like the flowers of spring, laboratories and educational institutions, endowed with some of the wealth of both honestly and ill-gotten gain, searching with the enthusiasm of the true scholar after the gem of gems — truth. Thousands of the keenest intellects, stimulated by ambition, by love of knowledge, and influence of mind upon mind, are spending their lives in biological, physiological and pathological scientific research. Myriads of eager eyes are peering ceaselessly through the microscope, looking for the festive germ, which is to account for all that is amiss or awry in this otherwise would-be perfect world of ours. Still other thousands are patiently and impatiently experimenting in the laboratory, at the bedside and in the clinic with disorganized humanity, looking for the elixir of life, or the panacea for all diseases.

The versatile Beecher once foolishly said that there grew within the sight of every man's grave

* Annual Address read before the South Middlesex District Medical Society, April 20, 1904.

some herb which, if rightly understood and applied, would have saved his life. Before and since that time there has been given for the cure of the sick, at some time or season, everything conceivable and inconceivable, in the heavens and on the earth, mineral, vegetable and animal, in the sea and beneath the sea, as well as the organic extracts of man and beast.

The pathologist has contended that all was diseased, and the Christian Scientist positively asserts that there is no such thing as disease. The specialist has searched for and found the trouble in his limited field, the surgeon has gradually dismembered the sufferer, till the marvel is how little of the original plan is necessary for existence; formerly the ovary was the *bete noire* of female happiness, but now the appendix and the gall bladder hold the centre of the stage. The physical culturist has exercised the patient; the neurologist has put him to bed; the dietarian has starved him; the Weir Mitchells have stuffed him; the hydropaths have deluged him inside and outside with water; and the orthopedist has baked him; the osteopaths have boned him and the quacks have fooled him; the homeopaths have given their thirty dilutions or infinitesimal doses, and the regular physician has given him a dose a million times as large; and all these treatments in the majority of the cases give practically the same results, for as Oliver Wendell Holmes once wittily said to a company of surgeons: "There's a Divinity that shapes our ends, rough hew them as we will." If this be true, as perhaps some of you will question, why is it true? I answer because a large part of our cases will get well, if let entirely alone and given a fair chance. You remember Mr. Dooley said: "If the Christian Scientist had some science, and the doctors more Christianity, it wudden't make any diff'rence which ye called in, if ye had a good nurse."

People are governed chiefly through their fears and prejudices, and not by their hopes. It is a very strange fact to me that from the medical schools and the masters and teachers, down through to the humblest practitioners, it is practically forgotten and ignored that man is a complex being; more than physical and material, or a complicated machine; that he has not only a body, but also at least a mind, if not a soul, whatever that may mean. There is an old Latin saying, which I think is not true, that where there are three doctors, there are two atheists. Personally, I am happy to say that I believe that man has not only a body and mind, but also a spiritual or moral nature, or soul. The how, the what, the where, and the whither of this third part of our nature I will not attempt to sermonize upon, or to teach to you. Maturity develops a belief in it. Of the mentality part of our nature, however, there can be no question, but its relation to and connection with the physical body is still a mystery. How vividly I remember my keen disappointment when a medical student, when the professor in physiology lectured upon the brain. He had told us of the functions and relations of the other organs of the body, and now was explaining those of the brain. In my interest and eagerness to have some things made clear that had always been dark, I forgot to take notes, and was all anticipation when the professor stopped and said: "But, gentlemen, here we have to stop; for how the mind exists and works and thinks in these brain cells we do not know." Even now I never make an autopsy or see the wonderful brain that I do not wonder and ponder over the same old subject.

But that the mind does exist and act and connect, and is dependent upon and interdependent with the body, is beyond question. The most of us can recall the days when we have done the most good have been the days we haven't opened our medicine case, if we carry one, or written a prescription, if we are more *toney* than economical. We have done it by removing groundless fear in A, in advising B, in restraining C, in encouraging D, and poking fun at E.

Can mental impressions and conditions cause disease? To answer that question, let us consider some of the familiar experiences of daily life. Pleasurable emotions, excitement, or shame will flush the face by dilating the superficial blood vessels, while fear or nervous shock will contract them and make one turn pale; and sudden and terrible bad news will so inhibit the heart's action as to stop it and cause death. Your critical attention gives me, just now, a bad attack of tachycardia. Grief and worry will stop entirely digestion, while later, to-day, the sociability of the banquet table will allow you to make pigs of yourselves with impunity. The whipped dog or the public singer or speaker has polyuria. The woman in labor will lose her pains on the coming of a new doctor, or any unusual excitement. The doctor will go with safety and impunity into all kinds of contagious and infectious diseases, while the fear-stricken laity will succumb while they are yet afar off.

It is a well-recognized fact among military men that an army is much more liable to sickness and disease after a defeat than after a victory. A woman in anger may poison her milk to the danger of her child. I knew a woman, young and healthy, midway between her monthly periods, when unexpectedly confronted by a tough-looking tramp, to have a tremendous gush of blood from her uterus.

But why need I cite further cases? They are familiar to you, and you can add to them out of your own knowledge and experience. If a momentary mental condition will give a temporary disturbance of function, then a prolonged bad mental influence will give a prolonged disturbance of function or disease. If disease is a lack of harmony in the functionating processes of life, then it looks to me logical that the proper cure for diseases caused by mental conditions is to remove the cause as far as possible, and use those agents that will best cure or correct the bad results.

When I write my prayer-book, I shall have as one of the leaders, "From hysterical women and hypochondriacal men, Good Lord, deliver

us." But if we belong to that class whose prayers don't avail much, and we still have such for patients, what shall we do with them? The love-sick maiden comes to us with a long story of nervous troubles, and we attempt to cure her by giving her phosphorus, when it isn't phosphorus she lacks or wants. Later in life she marries a beast, fondly dreaming she was wedding a man, and her later condition is worse than the first. Then, instead of killing the man, we give the poor wife valerian or assafetida. The hypochondriacal man imagines all sorts of things, and makes mountains out of mole-hills, and we give him — well, what would *you* give such a man?

The tendency of the medical profession of to-day is to look to the laboratory as the supreme court in medical science. In many things I admit that it is, but on the other hand, in many more things I contend that it is far from it. I desire not to be misunderstood. The laboratory has done, is now doing, and will in the future do more wonderful things, but it is only a part of our fighting force. There can be no question about the truthfulness of the germ theory, and its being a causative agent in the production of many diseases, especially the so-called infectious or contagious diseases, and others yet to be demonstrated, but the care of these is relatively a small part of our life's work. The trend is toward absolute materialism.

Sir James Paget said: "A physician's exclusive duty should be to study men as men, to master the marvelous intricacies and dependencies of spirit, soul and body, and to be sufficiently skilled to know when and how to call on the one to help the other, and with such men the profession would be complete." Sir Benjamin Brodie said: "It is the business of every practitioner of medicine to study not only the influence of the mind upon the body, but also that of the body upon the mind."

Neurotic affections of both children and adults are increasing and multiplying to an alarming extent, because more nervous energy is now expended in a decade, with modern high pressure living, than in a century of the good old times. The results are inevitable and lamentable. Psycho-therapeutics is a very important but a very poorly understood branch of our profession. It is yet in its infancy and a feeble child at that. Personally, I think there should be in every medical school a chair of psycho-therapeutics, which should include in it psycho-physiology and psycho-pathology. We have now bright lights in this field, among whom I would mention Gowers, Weir Mitchell, Charcot and others.

In this field the common people are dissatisfied and wiser than the profession. The neglect of this mental factor in medicine has been probably the direct cause of the multitude of fads, past and present, such as mental science, spiritualism, clairvoyance, mind cure, hypnotism, mesmerism, Dowieism, and the last two and most popular cults, namely, osteopathy and Christian science. I have done much reading and thinking on these fads the last year, and am ready to exclaim as did Hamlet to Horatio: "There are more things in heaven and earth than are dreamt of in your philosophy."

I have looked up with more or less care osteopathy. I have relied chiefly upon an article by J. Martin Littlejohn, an Englishman with many titles, and whose article was approved by a local osteopath as representing their ideas. Osteopathy was first formulated by Andrew Taylor Still, M.D., in 1874. Dr. Still claimed "that a natural flow of blood is health; that disease is the effect of local or general disturbance of the blood; that to excite the nerves causes muscles to contract and compress the venous flow of blood to the heart, and that the bones could be used as levers to relieve pressure on nerves, veins, and arteries."

Osteopathy aims to correct rib and vertebral displacements, to correct tissue contracture or displacement, so that when the tissues and bones are restored to their normal position and function, nature may resume its normal activity. In the removal of these obstructions, irritations and hindrances to free activity, they claim, lies the secret of osteopathic success. To sum up briefly what I gather of the system, if it can be called such, it is that they believe, or pretend to believe, that sickness is all or nearly all due to irregularities and displacements of bones, muscles, nerves and tissues, and by remedying these defects, sickness can be removed. To any one who knows anatomy, or has had experience as a surgeon or in the autopsy room in moving or removing a vertebra or any large bone from the place where the Lord put it, it seems a huge joke to think of trying to move any such bone through skin, fascia, muscle, tendon and cartilage. Only a mythical Cyclops could do that stunt. If they would honestly do away with the quack claim of cause, and practice and honestly claim results from legitimate massage, then they could accomplish wonders, and claim, deserve and have the respect of those who are searching after truth, wherever it lay.

Along this line of thought, I have also, in the preparation of this paper, read much concerning Christian Science. Now please don't do as perhaps you are in the habit of doing, say it's all nonsense, only a fad, that will soon pass. Not so fast. Have you ever looked it up and given it the same considerate investigation that you have other subjects? If not, I want to advise you to do so, not only to see for yourself what there may be in it, but also as an exercise in mental gymnastics to see what stunts your mind is equal to. I am ready to confess that though I am a college-educated man, been a teacher many years, done some public speaking, and under ordinary circumstances think I have a fair, average knowledge and use of the English language, yet when it comes to grasping and assimilating what the most of the Christian Science writers say, I am a monumental failure. I don't know whether I lack mentality or spirituality, or some other "ality," yet this I do know,— I can't see what they are driving at.

With some of the writers I found the sense was the same whether I began in the middle or at the end, or the beginning. It has reminded me of the old lady who read the dictionary through as a story book, who, when asked how she liked it, said, "Wall, it was all very interesting, but I couldn't see the connection." Mrs. Eddy, or as her quasi-worshipers call her, "Mother Eddy," the author, says Christian Science is the essential religion that Christ came to establish, but has been lost for centuries, but was rediscovered by her in 1866.

It is supposed to be founded on the Bible, but is a revised or up-to-date exposition of the same, as set forth in a book called "Science and Health, with Key to the Scriptures." Some of her followers claim that the simple reading of this book has cured them.

Let me give some of the striking and absurd thoughts or quotations from this book: "Christian Science is the Holy Ghost, the Comforter." "Jesus was the offspring of Mary's self-conscious communion with God." "The union of the two sexes is not required to create the rest of the human family" (page 524). "That our body is material, and as body should suffer, is but a delusion." "The body can never be weary, any more than a wheel" (114). "Food does not affect the real existence of man" (387). "Food neither strengthens or weakens the body" (118). "Lungs never sustained existence" (423). "Man is incapable of sin, sickness, or death" (471). "Disease is but fear made manifest in the body" (372). "Sickness is a dream from which the patient needs to be awakened" (415). "Ossification or any unusual condition of the body is as directly the action of mortal error as insanity. Bones have only the substantiality of thought which formed them. They are only an appearance, a subjective state of mortal mind" (421). "Inflammation, tubercles, hemorrhage, and decomposition are beliefs, images of mortal thought. They should be treated as error" (422). She says further: "The lightning is fierce and the electric current swift, yet in Christian Science the flight of the one and the blow of the other are harmless" (262). "Electricity is some of the nonsense of error" (259). "The unreal offspring of finite mind" (610). Again, she says: "She had already in her possession well authenticated records of the cure by herself and her students, through mental surgery alone, of dislocated joints and spinal vertebræ." Again she says: "A farmer chopped off his forefinger at the first joint and came to her for treatment, and that she made his finger whole, giving him a new bone, new flesh and a new nail." One of the most interesting and sane claims that Mrs. Eddy makes is the following: "Christian Science demonstrates that the patient who pays whatever he is able for being healed is more apt to recover than he who withholds a slight equivalent for health" (300, 301). That's common sense.

I could give you plenty more of interesting quotations, but perhaps what I have already given will suffice. Christian Science claims to cure all manner of diseases, and yet they say that sickness is only a dream and disease a fear.

A Mr. E. A. Kimball of Chicago, a teacher of Christian Science in the Boston Metaphysical College, said in a lecture in Boston last fall: "The practice of Christian Science is in its infancy. No pretence is made that such proficiency and efficiency have been attained by practitioners as to preclude any failure, but already this practice has resulted in the cure of practically every disease that is in the long list of incurables. In other words, Christian Science can heal all diseases that drugs have ever healed, and all that drugs have never healed, hence the Christian Scientist contemplates sickness as something he has a right to cure and ought to be able to cure."

Yet, personally, I have never known them to make a single cure, or even known of a well-authenticated cure of any serious disease.

Dr. John B. Huber of New York recently attempted to investigate twenty of their remarkable cures, but in no instance was he able to get the necessary facts by which their genuineness could be tested. He then wrote politely a series of questions to Mrs. Eddy. She did not reply, but, several weeks later, her counsel, Judge Hanna, wrote him, saying: "Study earnestly the Bible and 'Science and Health, with Key to the Scriptures.'"

I have given you some of the glaring nonsensical statements or quotations from the Christian Science textbook to show their inconsistency, yet I have no hesitation in saying that underneath what to the ordinary scientific mind seems and is nonsense, such as denying the existence of matter, the reality of sickness, pain and death, and evidence given us by our senses, there is in it an element of truth, which the doctor of medicine ought to know and make daily use of. Their leaders claim they have a following of two million people, and they are not the ignorant people either, but as a rule, they are educated. They are increasing in number and influence. They have their expensive churches, which are well filled. They doubtless cure many cases that are real or imaginary, that are due to mental or psychological causes that the regular profession foolishly ignore. So also have others, as quacks, mental healers, relic dealers and holy waters, cured by the same agency of mental suggestion.

Let us now turn our attention for a few moments to the art side of our profession. We used to hear much of the art and science of medicine, or the practice of medicine as a profession and an art, etc. Apparently the art of healing has been overshadowed and swallowed up by the science of medicine. The old-time doctor had one advantage that the latter day educated doctor does not have, namely, the preceptor. The advantages and knowledge of the little arts of life to be gained by a young man just starting in practice from an intimate association with a refined, gentlemanly, and successful general practitioner cannot be overestimated. The following concrete illustrations of the point in question could

never have occurred had the doctors in question had such an example:

A well-meaning and well-read young doctor just starting in a village in New England lost an influential family, and so the whole village, and had to move on because he asked the countrified question, "Do your victuals hurt you?" Another doctor I know of lost business and standing because in the presence of a lady of refinement he took his thermometer from her mouth, wiped it on his doubtful pocket handkerchief and put it back in its case; still another bad break. A splendid country physician was called to attend a high-toned city woman. He put his hand upon her flesh and innocently remarked, "Why, you are as hot as a *skunk*, a'n't ye?" He did not mean anything by it, any more than the clergyman did in the following story: A miscellaneous company were playing cards in a camp in Maine, when a rough but worthy old fellow called a minister a d—— fool, because of a play he made. His companions later called him down and said he must apologize for it, which he promptly did after this fashion: "Say, elder, I hope you didn't mind what I said to ye last night. I didn't mean anything by it. I didn't mean nothing more by it than you do when you pray in the pulpit Sunday morning."

These doctors quoted, I hear you say, lacked the instincts of a gentleman. True, but many a brainy man has been handicapped by lacking them, because of heredity and early influence, and should have had them cultivated. It is attention to the little details of life that make success, yet I do not recall a lecture or a sentence in my medical course that touched upon the art of medicine. In my opinion, one of the most helpful books that has been written for doctors is Cathell's "The Physician Himself," and every young and old doctor ought to read it.

There is another side to this subject to which I ask your attention. It is that feature of it which links us with the great hustling world. I refer to the dollar side, or the practice of medicine from its business or bread-getting view. A physician is a genuine altruist. From a dollars and cents standpoint our profession is a monumental failure, for I need not attempt to prove to any company of doctors that very few men who rely on their practice alone ever become rich. I venture the assertion that there is no class of men who have invested so much in preparation and equipment, that get so small a return on their investment. This is in a small part his own fault, for a doctor is by common consent a poor business man.

Our profession occupies the unique position of having every man in it doing his best to destroy his own business, and in this respect we are succeeding to a remarkable degree. The work of our profession has decreased the death-rate in some places like London one half in the last two hundred years, has added many years to the average of human life, to say nothing of the saving of an inestimable amount of human suffering.

Every advance in medical science, every new discovery of the cause of disease, every new law in sanitary science, every advance in hygienic knowledge and right living, lessens the sum total of work for our profession to do. But in all these things the true physician rejoices, as he does to have his patient recover. But there are other influences at work that are not so noble and desirable. The Great Physician has said: "The laborer is worthy of his hire," but we are not getting it, and it is rapidly growing less.

I am no pessimist or alarmist, but from my point of view, if the present tendencies are not checked or changed, I shall be glad that the most active part of my professional work was done in the nineteenth instead of the twentieth century. This is an age of organization. Unionism and combinations are in the air, and gigantic trusts are being rapidly formed. The minister is respected for the sacredness of his calling, the lawyer and the judge are hedged about and protected by the sanctity of the law. There are all kinds and degrees of combinations, from that of the Northern Securities and Ship Combine to the union of the servants in the kitchen and the bootblack in the street. Capital is arrayed against labor, and labor is pitted against capital, and between these upper and lower millstones the unorganized are suffering severe and unnecessary hardships. Among the unorganized are the doctors. We have our medical societies, it is true, meet together quarterly, listen to a paper, pass a perfunctory vote of thanks for the very able, interesting and scholarly address (I think that is the ritual), then eat a good dinner, and rush back to our labor of love, wondering if those that stayed at home had swiped any of our few patients in our absence. There are 80,000 regular physicians in the United States to-day, and we are adding to that army 5,000 new recruits every year. The National Brotherhood of Boiler Makers requires that an apprentice shall work four years before he can be called a journeyman, while we have many medical schools which in one year of actual time will authorize by diploma any callow youth to rivet together the human boiler.

It has been computed that it takes at least 1,000 people to give a doctor a living, but we have at the present time one doctor to every 600 people. If each physician had the 600 people he would be lucky, but he hasn't. The abuse of the out-patient department of our hospitals is too well-known to need any words from me, and the abuse is with our help. It is an alarming and rapidly increasing evil, especially in our cities. It is estimated that now fully one-half of the population of New York City and Chicago are medical paupers in the hospital clinics. Another dangerous tendency is the formation for profit, often by laymen, of the so-called emergency hospitals, where any laboring man can be cared for, if injured, for one year for one dollar. Not only do the steamship lines and railroad lines have their surgeons, but there is a rapid increase in the number of and membership in social insurance organizations, such as the Hibernians, the For-

esters, United Hebrew Society, St. John Baptiste, Odd Fellows of the Manchester Unity, etc., where each member is cared for for one dollar per year.

Large contractors, manufacturers, mining companies are doing the same evil thing, and by the aid and consent of its agents and victims, the doctors. These are the days when the masses desire to get rich quick. Graft is also in the air, and it not only invades the government of cities and politicians, but even the professions are becoming tainted. Private hospitals and sanitariums, specialists, surgeons, and even nurses in some places offer a liberal commission on business brought them, and, I fear, could the actual amount of this nefarious business be made open and public, it would be a great shock to the moral sense of the profession as a whole.

Not only are the evils of counter-prescribing increasing, but the patent medicine evil is increasing, not only in quantity, but also in quality of business done. The elegance and combinations of modern large drug manufacturers now make it easy to any intelligent man or woman to remember the name of some favorite combination that their physician prescribed for them, and the next time it is wanted get it without asking the doctor's " If you please."

Our medical experts have come into such disrepute, as witnesses, because testifying for money instead of truth and justice, that an eminent English jurist has recently said, " There are three classes of liars, — liars, damned liars, and medical experts."

These are growing tendencies and evils on the business side of our work, not mentioning poor collections, dead beats, and bloodsuckers that yearly make it harder and harder for a conscientious doctor to live and support and educate a family; and they will continue to increase till the profession awakens and begins to assert some of its self-evident rights, and demand a fair treatment from the public. We are not only not paid by our patients, but more and more often, we are turned upon and abused most by those we have served best, aided and abetted by the shyster lawyer, who offers to take a case for malpractice for nothing if he fails, and divide the award if the doctor settles the case, and we have no redress. As illustrating this principle and tendency, I beg your indulgence in allowing me to quote a case and a chapter out of my own recent personal experience. In 1900 a carpenter was severely injured by a fall in my town and taken to the Framingham Hospital for treatment and repairs. He was found to have suffered a simple fracture of his left humerus, and a " T " fracture of his left tibia, into the ankle joint, with the left fibula dislocated and driven into the sole of the foot, with some other lesser injuries. At this time and for the next eleven days he was under the care of another physician. Both the arm and leg were put up in plaster-of-paris casts, well padded. An effort was made to hold the foot with other kinds of splints, but they would not hold it. By chance I happened in the accident room while the arm was being put up. I did not even know that the leg was broken. The toes were all left out as usual, and at no time showed evidence of undue pressure. There was but little pain in the foot, and but little morphia given. Eleven days after the accident, he asked to come under my care, because I was on duty at the hospital, and he could have my services free. This request was granted. On the fifth day of my service I removed the plaster and found a small dry slough, the size of a silver quarter, on the instep. I cared for him three weeks, when he went to his own home and physician. This slough gradually deepened until it destroyed the tendon of the tibialis-anticus muscle, and he was cared for in the Massachusetts General Hospital for many weeks. He lost in all some six months' time.

For the above case, the doctor who only gave the man ether, the doctor who took care of him the first eleven days, and myself, who cared for him the last twenty days he was in our hospital, were each of us sued for $10,000 apiece for malpractice; but the doctor who put on the cast was not sued, by mistake of identity.

For many years, because of this blackmail business, I have not kept my property in my own name, but what interest I might have had in my wife's property was tied up by this suit.

It was more than three years after this accident before the trial came off. In that interval, as is usual in such cases, hints were thrown out by the prosecution that a few hundred dollars to help the poor man would probably settle the suit. To add to my discomfiture, my two able and trusty lawyers advised me to settle the case if I could, saying it would cost me more to fight it than to settle it, and run the ever-present risk of being beaten before a jury. I am so constituted that I can throw good allopathic dollars into the stock market and see them depreciate into the thirtieth dilutions of homeopathic pennies, and whistle and grow fat, but to have my leg pulled for even a trade dollar makes my whole Anglo-Saxon spirit boil with righteous indignation, and therefore, perhaps with more stubbornness than sense, I refused the advice, and made a vow that I would sacrifice all my wife's relations before I would pay one cent in settlement, reaffirming in another form Otis's famous adage, " Millions for defence, but not one penny for tribute to a shyster lawyer."

The trial came, and with it the usual number of cheerful liars. Some of the testimony was rich. The plaintiff testified that he had such pain that the nurses gave him a Hypo. of Morph. every half hour for two days, whereupon one of Boston's famous surgeons reached over to me and said, " You do a land office business out in the Framingham Hospital, don't you? " Another amusing bit of testimony was when all the witnesses for the prosecution, especially the women, passed by the plaster cast on the arm, easily seen, and in serious procession all lifted the bed clothes to look at the leg, and all saw only one toe, the big toe, and that was always black.

But I must abbreviate my story. I am told that many large law firms think it necessary to have one solid man for influence and dignity, and another man to get business, like the Quaker's advice to his son, "Get business, honestly if possible, but get business." Such were apparently the prosecuting lawyers. It gives me pleasure to say publicly that the senior member of the plaintiff's lawyers, who had not said a word in the trial for the two days, and when not more than one half the witnesses for the defense had testified, came into court on the morning of the third day and moved that a verdict for the defense be given.

Two things helped to mitigate the annoyance of this case. First, the interest and loyalty of the doctors, some of whom gave generously of their time without thought of money, while yet others generously offered services that were not needed. Dr. M. H. Richardson, the man with a big heart, as well as a big mind and body, gave two days, as he said, for love and not for money. Dr. Mixter heroically sat out a whole day when he ought to have been in bed because he was sick. Dr. Bottomley of Boston, Dr. Hoitt of Marlboro, and Dr. Wood of Waltham all gave two days for the love of right.

Second, because this was a hospital case, both my lawyers, Ex. Dist. Attorney P. H. Cooney of Natick and Ex-Representative John M. Merriam of Framingham, both able and busy men, gave probably a week each, and both refused all money consideration. My money expense, therefore, consisted only of railroad fares and banqueting the lawyers, doctors and witnesses at the hotels and restaurants of Cambridge, and those of you who know of them don't need to have that joke labeled.

My story of this case would not be complete were I not to tell what to me is a delicate and sad part of it. When I told my case to my senior counsel, he at once replied, "There is some doctor at the bottom of this. There always is." I replied, "There can't be, for there is no reason for there being one." I can understand how the family physician of this injured man would sympathize with him, — he ought to. He may have tried to discourage a suit, though I have evidence to the contrary. I can easily forgive him for taking the witness stand against me, because he would be obliged to when summoned, but I couldn't understand then, and I can't now, after six months of sober thought, how any physician, with any true professional spirit, and especially an honored member of this society, would give over to the prosecution a personal and confidential letter I wrote him as a favor, to be used against me, after three years' time, and while upon the witness stand, when lawyers say he was under no obligation to do so. This courteous letter of mine was never even acknowledged, and I have never received any note of interest or sympathy in any way since from him.

Another very marked and popular tendency of the present day practice of medicine is toward specialism. Unfortunately for a clear discussion of this subject, the term is used loosely and differently. It has a catchy and high sounding tone to it that covers a multitude of shortcomings. It is a fetish which the popular fancy just now worships. Nothing that I know of will so quickly satisfy an uneasy patient, and the meddlesome interest of perhaps well-intentioned neighbors, as to say to a family, "Well, this is so rare and unusual a case that we will refer it to the final and supreme court of medical knowledge, and have a specialist from the city come out."

This has a twofold attraction. He is not only a specialist, but he is from the city. Did you ever hear of a specialist from the country being called? It would be a paradox. It is a very common idea among the city as well as the country minds that a residence and practice within the city's corporate limits carries with it a superior knowledge and *vice versa*, and that because a man chooses to live where he can enjoy driving through the woods and the green fields, and see and hear some other bird sing beside the chattering, quarrelsome and contemptible English sparrow, he is in consequence inferior to his city brother.

But to return to my specialist. He comes out with the air of a conqueror, and the paraphernalia of his peculiar specialty. He looks wise, and at once gives the impression that at last we have found a man that knows. He asks questions, both relevant and irrelevant. He uses big words that have been coined to express conditions that we do not understand, but sound expressive. He gives a big name to the disease or condition, but when he comes to suggesting a big medicine to fit and cure the big name, he at once comes into the same class with the countryman. He, however, gives some directions which the home doctor is glad to carry out, for he is at his wit's end, and ready and glad to try any new thing. The patient's mind has taken on new hope, for he had seen a specialist from the city, but physically he remains the same, and, after a few days, finds himself in the same old condition. I am reminded of the apt and quaint way in which that prince of men and teachers, and under whose instruction it was my happy fortune to have been, Dr. Oliver Wendell Holmes, put it, when he said of a man who consulted many specialists, and finally died just the same, that he raised the question whether it would not have been just as well and a good deal cheaper if the patient had *not* got well under his family physician at home, as under the city specialists. It is a law of economics that the supply will equal the demand. Create a demand of any kind, and there will be a consequent and necessary supply. Specialism is in the air. It is everywhere and creating a universal demand. We see it in the one hundred and forty different religious sects with their varied beliefs and teachings. We see it rapidly developing in the legal profession. We see it running wild in our system of education, and especially in our higher institutions of learning, where electives have gone so far as to already alarm its advocates. We see it in all lines of

business. We see it in manufactures, where the work has become so divided and subdivided that the part of each person has become so small a part of the finished product, that the workman becomes practically a machine or automaton himself and by that much cramped in his development. Well do I remember the little boot and shoe shop that was so common all over New England twenty-five to fifty years ago, where each man made the whole boot or shoe and was a master workman, knowing the business from A to Z. If necessary, I could name other lines of specialism.

In the profession of medicine there has been the same tendency and the process is still going on. In a delightful book recently published, and written by Dr. Mumford, one of our bright young Boston surgeons, entitled "A Narrative of Medicine in America," he devotes his closing chapter to tendencies in medicine, and among them he speaks of specialists. To learn how many were becoming general practitioners and how many were specialists, so-called, he sent a series of questions to the graduates of Harvard Medical School, in the ten years from 1892 to 1901, which were in number 820 men. Of this 820 graduates questioned, 487 responded, or nearly two thirds. From the replies, several very interesting facts were learned. First, only 191 out of 487 had settled in large cities of 100,000 people or more; 229 men, or nearly one half, had settled in small cities of from 10,000 to 100,000 people, while only 38 were in places of less than 10,000 inhabitants, or country practice. Of these 487 doctors who responded, 96 are pure specialists, or about one in every five men, and four out of five classified themselves as general practitioners. Of the general practitioner, 99 combine some specialty with their general practice, and 77 of them intend and expect some day to abandon general practice for a specialty. If this intention is carried out, and none of the specialists get discouraged or change for other reasons to general practice, this would make more than one third of these graduates of ten years, specialists. Of the 487 reporting, only 202 are and expect to be "Simon pure" general practitioners, or less than one half.

Another surprise to me was the fact that only two out of this whole number stated that they had been general practitioners and had now become specialists. Still another surprise was the number of different specialties returned, there being thirty-three in all. With the present tendency, it is only fair to expect that this number will be still further enlarged and subdivided. Within my day I have seen them rapidly increase.

An interesting discussion has been going on of late, as to whether or not this increased specialism did not eventually result in the final extinction of that once upon a time highly appreciated species, called "the beloved family physician." There are those who would make of him only a person like that of a doorkeeper of the large clinic, a man who sorts out the kind of trouble and then tells them what room to go to for special treatment.

As an illustration of this tendency, but I imagine an unusual case, I quote from an address given by one of Boston's eminent lawyers, Mr. Moorfield Storey, before the Harvard Medical Alumni Association recently, in which he said that within one year he had employed in his family twenty-three different doctors. In this connection I raise the query, Did either one of these twenty-three different doctors know thoroughly any one member of that family, so as to treat him intelligently as a unit, or a harmonious or inharmonious whole, or did each one, like the modern shoemaker, attempt to repair some small individual part of this intricate machine, whose function may have been thrown out of harmony or health by some reflex influence, arising in some other part of the body, to that individual specialist a hidden book?

Is there such a thing as knowing one's constitution, and has every individual a personal equation, which an intimate, experimental, personal knowledge, by a family physician extending through many years, would enable him to treat and care for more thoroughly and successfully, than the new man or any number of special knowledge men? My experience teaches me that this is so. Lest my position be misunderstood, and I get the credit of being opposed to specialism and specialists, I shall risk a little more personal history, and confess that I, too, pose as a quasi-specialist. After fifteen years of general practice in a large country town and village, I found myself interested in special lines of my work, and I spent more than a year in Boston, New York and the medical centers of Europe in preparing myself for those special lines of work. This study was a perfect delight and I am glad I made it, for it not only gave me new light, but the breathing spell gave me a new lease of life. Because of real estate anchors and a too strong love of old friends, I returned to the place of my general practice, hoping in time to devote myself entirely to the special work I enjoyed most, and drop the hard parts of a general practice.

In the past eight years I have demonstrated the following points to my own satisfaction: First, that it is very difficult and practically an impossible thing for a general practitioner to drop his general practice, while he remains in a place where he has become thoroughly known and established as such. Second, that so long as a person does any general practice, he need not expect to be acknowledged a specialist or given work as such by his brother practitioners to any extent, for fear of losing patients. On this point I find no fault or make any harsh criticism. It is perfectly natural. Third, that when one makes any claim to specialism, a certain proportion of the people think that from lack of interest or ability he becomes less valuable as a general practitioner. Fourth, that specialism and general practice are not incompatible or undesirable, either from a professional or monetary or enjoyment point of view, but rather to the contrary. Fifth, that having learned the limitations of the specialists, I have a peace of

mind that the world cannot give or take away. Sixth, that with the higher requirement now insisted upon by our best schools in the four years' course, and the critical work now done in small sections along special lines, every man allowed a degree of M.D. should be a specialist along general lines in nine out of every ten cases he sees, and be able to tell when, because of his own limitations, to send the tenth case to some one with superior knowledge and skill, who can do better for him than he can. Seventh, I am firmly convinced that the family physician has a work and a place that no amount of specialism ever can or should destroy. That at the present he is under a cloud and not justly appreciated, but with the development of humanitarian tendencies so noticeable at the present time, he will again be recognized and appreciated as a potent factor in the world's betterment and advancement.

Having given you what have seemed to me some of the unfortunate tendencies of our noble profession, you will probably ask me for my remedy. I offer the following suggestions as a tonic:

First, a better *esprit de corp*, and less foolish jealousies in our ranks. Second, a cultivation of a more businesslike profession, putting a proper value on our own services, sending bills and collecting them. Third, a better organization, in simple self-protection. Fourth, the discouragement of the free clinic for those able to pay, and the employment of society doctors. Fifth, the joining of a physician's defence alliance, and fighting every case of malpractice instead of compromising it. Sixth, the improvement in the quality, and lessening the number in our profession when possible. Seventh, taking greater interest and active part in legislation that affects us as a profession. Eighth, by enlarging our medical vision beyond material agencies. Ninth, by an increased interest in national organizations, and co-operation in regard to moral betterments such as divorce laws, food and drug adulterations, sanitation, national quarantine regulations, etc. Tenth, uniformity of requirements for a degree in different medical schools, and in examinations for permission to practice in different states, with reciprocity between such states in these certificates, and other similar laws.

I cannot better close my paper than by the following quotation from an editorial in the *Christian Register:*

THE FAMILY PHYSICIAN.

"This is such a day of specialties that comparatively few can ever enter into the dear old relation that existed formerly between physician and family. Heart secrets and sufferings that the minister could not extract from burdened souls were poured into the trustworthy ear of the good doctor who ministered to soul quite as much as to body. His breast was the safe repository of every man, woman and child in the parish who needed his confidence, and to no other human being did he ever betray these confidences. When such a man enters the sick room the burden of anxiety falls from the mother's heart; her child is safe so long as he is there. It seems as though he had power to banish the death angel; or if, indeed, that sad messenger must come, the physician becomes the sympathetic friend who gives strength to bear the sorrow.

"There is no man in the community who has more love and respect than the good physician. As a rule, physicians are more permanent residents than ministers, since short pastorates are now the fashion, so that the pastor must give up to the doctor the place of honor which he once held when he was the curé of two or three successive generations in the same parish. One asks with sadness as the poets pass away, Who is going to sing the songs of the future? When the great men die we ask, Where are they who are to be the great men of the days to come? And so, when we see the family doctor going his rounds, faithful, generous, devoted, and daily growing more wise, threading his way through crowded streets that were pasture-land when he began his practice forty years ago, we ask with a pang at our hearts, Who can ever take the place of the beloved physician? Long may he be spared! And may many of the young men who are now seeking that profession for 'what there is in it' find that the noblest thing in it is the opportunity that it gives for devotion and self-sacrifice, for winning love and honor, and for saving men, heart and soul, as well as body. No profession requires more of a man — fidelity, purity, wisdom, patience, hard work, sleepless nights, weary days; but no profession brings richer rewards or sweeter benedictions."

Original Article.

EXAMINATION OF PLEURAL FLUIDS WITH REFERENCE TO THEIR ETIOLOGY AND DIAGNOSTIC VALUE.*

BY PERCY MUSGRAVE, M.D., BOSTON.

THE examination of pleural fluids for many years has furnished us with little valuable data upon which to base a positive or even probable diagnosis of the underlying cause of the effusion. To be sure the specific gravity and the amount of albumin have, in most instances, enabled us to differentiate between the exudates and transudates, and in few cases masses of the so-called cancer cells have been of positive diagnostic value.

In the last three years many investigators in Europe have done a large amount of work with reference to determining the cause of these effusions, and two new and valuable methods of investigation have been published.

In 1900 Widal and Ravaut [1] published the results of their researches based upon the differential enumeration of the white blood corpuscles and endothelial cells found in the sediments of

* Read before The Massachusetts Medical Society, June 7, 1904.
[1] Widal and Ravaut. Compt. Rend. de la Soc. de Biol. de Paris, 1900, p. 648.

serous fluids, and as a result have formulated the following laws, or so-called cytological formulae:

1. A predominance of lymphocytes means a tubercular effusion.

2. A predominance of polynuclear leucocytes means an effusion of an acute infectious origin.

3. A large number of endothelial cells, occurring especially in sheets or plaques, means a mechanical effusion or transudate.

They also divide tuberculous pleurisy into two classes. The primary form, in which there are no discoverable lesions of the lungs, and the secondary form resulting from an underlying tuberculous lung focus.

In the secondary variety the lymphocytic formula, as seen in the primary form, is usually not found, but instead the sediment is almost entirely composed of necrotic cells and detritus. Of the distinguishable cells a large proportion may be polynuclear. This difference is probably due to a mixed infection

Of the acute infectious varieties they note those due to the pneumococcus, streptococcus and staphylococcus In the pneumococcus variety they described the occurrence of considerable numbers of large cells having phagocytic properties. In the streptococcus variety these cells are comparatively few in number and the percentage of polynuclear leucocytes is greater.

These formulæ have been extensively investigated by numerous observers, especially in France, and, to a lesser extent, in Germany, and have in the main been found correct. Certain modifications, however, must be taken into consideration. The chief of these modifications which has been pointed out especially by Naunyn [2] is, that lymphocytes may also predominate in transudates of long standing or near the end of an acute infectious case where the process is subsiding or where the infection is a very mild one. The specific gravity and the amount of albumin aid us in eliminating the first mentioned of these conditions, and the clinical evidence usually gives a clew to the nature of the process in the second condition. Both of these conditions are rarely met with.

In the first week or ten days of a tuberculous effusion polynuclear elements may predominate, but these rapidly disappear and give place to a purely lymphocytic formula.

The phagocytic cells mentioned above as occurring especially in the cases of pneumococcus origin are of very large diameter as compared with the other elements occurring in the sediment, and I have frequently found that they measure as much as twenty microns. These cells frequently contain partly digested polynuclear and other cellular elements, which can easily be seen included in their protoplasm. Their occurrence in large or increasing numbers is usually a good prognostic sign, and their absence, together with the presence of bacteria, is usually a warning of approaching empyema.

From the observations which I have been able to make, the presence of polynuclears in a proportion of over 90% and the presence of bacteria in most cases precedes an empyema by only a few days.

Little need be said of the formula for the transudates except that the diagnosis is occasionally complicated by the presence of a considerable amount of blood which raises the specific gravity and the amount of albumin. This blood is usually accidental.

In addition to these above three classes of fluids we have the cancerous cases. These are difficult to diagnose, since the majority of pathologists agree, I think, in saying that it is difficult to differentiate the so-called cancer cells from endothelium, unless actual pieces of the cancerous tissue can be isolated. The iodine reaction (showing glycogenic degeneration) was thought at one time to be suggestive of the cancer cells, but this reaction is very commonly seen in the endothelial cells of simple transudates and in other conditions where endothelium is found.

The few cases of cancer that I have been able to study have shown a high specific gravity, 1,018 or over, and an albumin content of over 1.5%. The sediment has shown many more endothelial cells than are found in the tuberculous cases and these cells are often found in plaques. This is very rare in tuberculosis. There is usually a much larger number of lymphocytes proportionally than in the simple transudates.

In addition to the above method of investigating pleural fluids, to which the writers have given the name cyto-diagnosis, Jousset [3] has published a new procedure for the detection of tubercle bacilli in these fluids, to which he has given the name of inoscopy and which is of value in some cases.

The technic of cyto-diagnosis is as follows:

The fluid should be drawn with the usual aseptic precautions into sterilized flasks or tubes. If it is already clotted when received for examination, it should be shaken and stirred with a glass rod until the clot is thoroughly contracted and the clot, or all clots of large size, should be removed. This is necessary because some of the cellular elements are entangled in the fibrinous meshes and by contraction of the clot are set free.

Widal and Ravaut accomplished the process of defibrination by placing sterilized glass pearls in the flask and shaking the fluid thoroughly. This I do not believe is essential for an accurate differential estimate of the cellular elements.

The fluid is then placed in centrifuge tubes and centrifugalized for five minutes at least.

Decant the supernatant fluid gently at first, and when only a small amount remains invert the tube for a few seconds. A few drops will adhere to the side.

[2] Naunyn. Uber Cyto-diagnostik der Pleuraexsudate. Deutsche Med. Wchnschr. Leipz. u. Berlin, 1903, Apr. 30, 1903. xxix, Ver. Biel., p. 140.

[3] Jousset. Soc. Med. des Hop. 9 Jan., 1903. Sem. Med. No. 3, 1903, p. 22.

With a small platinum loop stir the sediment thoroughly, rubbing the sides of the glass to remove adherent portions. When the sediment is thoroughly mixed with the few drops of fluid remaining after decantation, remove a drop of the mixture with the platinum loop and make a cover-slip smear. Allow this to dry spontaneously or by gently heating the preparation. (Heating at the boiling-point will spoil the preparation.)

Many methods of fixing and staining these preparations have been used by the various investigators. Alcohol, and ether, chloroform vapor, and osmic acid have been used as fixative agents. Ehrlich's triple stain, hemotoxylin and eosin, methylene blue and eosin, Loeffler's blue, and a great variety of other stains have been employed.

Some writers have maintained that careful differential staining was not essential, but from my observations I cannot agree with those holding these views, for the reason that careful differential staining of the protoplasm and granules of the polynuclear elements is essential, since the nuclei of these elements are often globular when the cell is degenerated, and they may be mistaken for lymphocytes.

The method of staining which has given the best results in my hands is practiced as follows: Cover the preparation with a staining fluid composed [4] of

Wright's blood-stain,	3 parts.
Pure methyl-alcohol,	1 part.

Allow this mixture to remain on the preparation twenty to forty-five seconds, then dilute it with eight or ten drops of water, and allow it to stand one or two minutes.

Wash very gently, preferably by flooding the slide with a dropper. Do this four or five times, allowing the water to remain on the slide a few seconds each time. Vigorous or forcible washing will destroy the film and spoil the preparation.

Dry the preparation by holding it between the thumb and forefinger and waving it through the Bunsen or alcohol flame. Do not attempt to blot the preparation or heat it above the temperature which the fingers will bear.

Mount in xylol-balsam and examine with an oil-immersion lens.

Inoscopy is practiced as follows:

1. The fluid should be drawn with aseptic precautions into sterilized flasks (Ehrlenmeyer flasks preferably) and at least 100 cc. should be taken, although results may sometimes be obtained with much smaller amounts. Allow the fluid thus taken to clot.

2. Shake the fluid gently to contract the clot as much as possible, and then wash it on a piece of sterile linen or fine gauze wrapped over the end of a funnel, until all the serum is washed away.

3. Remove the clot or clots with a sterile spatula, and place it in a small flask with sufficient of the following fluid to digest it:

Pepsin,	2 gm.
Pure glycerin, }	each, 10 cc.
Strong HCl, }	
Sodium fluoride,	3 gm.
Distilled water,	1000 cc.

The amount of this fluid necessary will vary, of course, with the size of the clot to be digested, but 20 or 30 cc. is sufficient in most cases. A freshly prepared pepsin — HCl solution — apparently serves as well as the above fluid, but will not keep on standing as the above fluid does.

4. Place the above preparation in the incubator or oven until the clot is digested. A temperature of 37 C. for two or three hours will suffice but the time is shortened if kept at a temperature of 50 C.

5. When the clot has disappeared, pour the mixture into centrifuge tubes and centrifugalize for five or ten minutes. Decant the supernatant fluid as described under cyto-diagnosis.

6. Make a cover-slip preparation and stain it for tubercle bacilli. Care, however, should be taken not to decolorize too long — one half to three quarters of a minute with Gabbet's solution is sufficient. Dry and mount.

The majority of the bacilli found by this method are shorter and broader, as a rule, than the tubercle bacilli usually seen in sputum, and some are paler red, but all forms occur. These bacilli may occur singly or in groups. The largest part of the sediment consists of undigested nuclei and a small amount of detritus.

Chiefly through the courtesy of the Visiting and Out-Patient Staff of the Massachusetts General Hospital I have been enabled to make systematic examinations upon seventy-two cases of serous fluids withdrawn from the chest, and the remarks and conclusions which follow are derived from the study of these cases with reference to their clinical history, chemical and microscopical examination of the fluids, and from animal inoculations and cultures in a large number of the cases.

For the sake of convenience, I shall divide these cases into four classes according to the diagnoses justified by the examination of the fluids:

Class 1. The Tuberculous cases.
Class 2. Acute Infectious cases.
Class 3. Mechanical Effusions or Transudates.
Class 4. Cancerous cases.

TUBERCULOUS CASES.

The largest number of cases examined must be classified under the first heading. Of these there are fifty-one. To follow out the scheme of Widal and Ravaut,[5] this class must be further sub-divided into the primary and secondary tuberculous cases, namely, those cases in which the sputum is negative, and there are no demonstrable lung lesions, will be classified as primary; those cases in which the examination of the spu-

[4] Wright, J. H. The Journal of Medical Research, 1902, Vol. II., pp. 138–144.

[5] Widal and Ravaut. *Loc. cit.*

tum shows tubercle bacilli will be classified as the secondary cases. This is by no means a strictly anatomical classification, but an arbitrary one used for the sake of convenience. Before dividing them into these two sub-classifications, I shall speak of the tuberculous cases as a whole. Out of fifty-one cases, twenty-eight were positively proved to be of tuberculous origin, 54.5%. They were proved by one or more of the following methods:

Animal inoculation.
Presence of tubercle bacilli in the sputum.
Operation.
Inoscopy.

Seventeen cases, 33%, in this series gave positive results when inoculated into guinea pigs, producing unmistakable anatomical lesions in these animals from one or more of which in every case bacilli were demonstrated by cover-slip preparations. In thirty-three cases the animal inoculated showed no evidence of tuberculosis.

Inoscopy was positive in ten, 45.4%, out of twenty-two cases in which examinations by this means was possible. This method was not applied to cases examined before Sept. 4, 1903, but since then it has been brought into use on all cases in which there was sufficient coagulum. In a considerable number of the cases this was so small as to exclude the possibility of doing inoscopy, and I have not yet been able to find any practical and simple method of causing these fluids to clot.

The bacilli found were, in the majority of cases, short forms resembling the tubercle bacillus grown on culture media, and in some instances resembling the familiar form of tubercle bacillus seen in sputum.

In two cases bacilli were found both by inoscopy and in the lesions in guinea pigs.

In five cases the tubercle bacillus was found in sputum; in two of these animals inoculation was positive, and in two negative, and in one case no other tests were applied.

One case was proved by the tuberculin test and subsequent operation for tubercular peritonitis.

As I have just shown, forty-six of these cases come under the heading of primary tuberculous pleurisy and five under the heading of the secondary form. Twenty-three, 50% of these cases, as I have shown, were certainly tuberculous. Of these, the differential counts of the white cells in the sediment showed a marked predominence of lymphocytes in twenty-two of the twenty-three cases. In one case necrotic changes in the sediment rendered the differential estimation of the cells impossible. In other words, the lymphocytic formula as described by Widal was found in twenty-two out of the twenty-three cases; in one case the diagnosis which was indicated by the sediment would have been secondary tuberculous pleurisy but no bacilli were found in the sputum. Out of the twenty-three unproved cases of this series twenty-two showed an unmistakable predominence of lymphocytes.

The question now naturally arises, What evidence have we that 50% of this series is tuberculous, seeing that we have been unable to prove it? The clinical history in both the proved and the unproved cases is identical, namely, that the majority show an insidious onset with pain in the chest, slight cough, with or without sputum, and gradually increasing dyspnea and anorexia. An appreciable elevation of the temperature may or may not be present in any of these cases. The appearance of the patient does not give us any differentiating clew. In other words, the clinical picture is the same in both series.

Of the twenty-three unproved cases two can be excluded as in all probability not tubercular by means of the clinical history. One was an unmistakable pneumonia followed by a pleuritic effusion; the other was a case of myocarditis, and from the specific gravity was, without much doubt, a case of transudate; in other words, the examination of the sediment led us to faulty conclusions. (Cases 51 and 50.) In one case there was a history of trauma and, although the specific gravity and albumin were both high and the sediment showed a marked predominence of lymphocytes, the question arises if this does not fall into the class of mild acute infections which I have previously mentioned as a source of error. (Case 48.)

Another case, coming on eight days after labor with sudden onset, suggests the possibility that this case also may be one of the same nature. (Case 41.)

It is also fair to exclude a fifth case where pleural effusion arose in the course of a lymphatic leukemia, since the number of lymphocytes in the blood in this case would strongly suggest that their presence in the pleural fluid was of blood origin. The white count was 711,900, the differential count showing five hundred lymphocytes in a count of five hundred cells. (Case 39.)

Of the remaining eighteen cases the history in four suggests a tuberculous origin. The reasons for the failure to obtain proofs in these cases, although theoretical, are certainly plausible by analogy.

Out of fifty animal inoculations made with the fluid from cases showing the so-called tuberculous formulæ, even including the cases which we have shown were probably not tuberculous, only 33% appeared positive, but we have seen that by inoscopy we have been able to find bacilli in ten cases, only two of which gave positive results in the pig; in other words, where the bacilli were found by inoscopy the animal gave negative results. This suggests that in many of these cases the bacilli have lost their virulence for animals. This is also rendered more probable from the fact that I have several times seen organism within the cells of cover-slip preparations made from the sediment which would not grow on culture media.

As further illustrating the difficulty of proving these cases in one of the series of proved cases (Case No. 2) inoculations of three animals from

three successive tappings in November failed to give any positive results, but, although there was no change in the character of the fluid or in the condition of the patient, except for reaccumulation of fluid, an animal inoculated in May gave positive results, and another case (Case No. 14) in which three successive inoculations occurring within three weeks of each other were made from the fluid drawn from the same patient, the first animal inoculated was positive and the other two negative. Another case (Case No. 27), reacting to tuberculin and showing at operation tubercular peritonitis, gave negative results when inoculated into a guinea pig.

In Barjone and Cade's [6] series of cases it was not an unusual experience to have only one out of taree or four animals inoculated respond.

This class of cases, namely, the so-called primary tuberculous cases, is the one which has given rise to so much discussion for the last twenty years. It was formerly attributed to taking cold, so-called "Pleurisy *a Frigore*," but the investigations of the French school, also those of Naunyn,[7] Litton and Wolff [8] have shown us that at least the great majority of cases are probably tuberculous. To Landouzy,[9] Le Damany,[10] and Widal and Ravaut we are indebted more than to any others for the interest aroused in the investigation of this problem, and for pointing out valuable methods of investigation.

With regard to the cases of secondary tuberculosis, little need be said, as, with one exception, they all show the formula described by Widal.

One case, however, did not show the necrotic, broken-down sediment, but an evident lymphocytosis; this, however, is not particularly significant since it would have led to the diagnosis of tuberculosis in any case. It is in this class of cases that the examination of the fluid is of the least diagnostic value since the diagnosis can be made in any event from the sputum.

It has been possible, however, in two of this series of cases to predict the finding of tubercle bacilli in the sputum, which subsequently occurred.

In one of these cases, reported in a former article, although the examination of fluid was that of a hydro-pneumothorax, or secondary tuberculosis, no proof of its being tuberculous could be found at that time, but subsequently, the patient re-entering the hospital, bacilli were found in the sputum.

ACUTE INFECTIOUS CASES.

There are twelve of these cases, six resulting in the course of an acute croupous pneumonia, one from infarction of the lung, with subsequent infection with the pneumococcus, three started from unknown sources, one from trauma and one from abscess of the liver infecting the pleura without rupturing into it.

In six there was no growth on culture media, two showed pneumococcus, two streptococcus, one staphylococcus, and in one no culture was taken.

In seven of the cases organisms were found on the cover-slip, usually few in number.

Five of these cases are of especial interest. In one (Case No. 63) where the diagnosis of an acute infection was established against a clinical probability of its being tuberculous, the examination was of great aid in determining whether or not an operation should be done for an abscess of the liver.

In one case (Case No. 53) it was possible to predict an empyema, which subsequently followed.

In two cases (Cases No. 60 and No. 61), although the fluids were serous, streptococci occurring on the cover-slip determined the advisability of immediate operations.

In one case (Case No. 52) in which the clinical diagnosis was endocarditis, and from that diagnosis it seemed most probable that the fluid was a transudate, examination showed an acute infectious process, and subsequently at the autopsy it was shown that the effusion was due to infarction of the lung which had been invaded by pneumococci with resulting consolidation. The sediments in these cases showed a predominence of polynuclear leucocytes.

TRANSUDATES.

Of five cases of simple transudate four appeared in the course of cardiac disease and one in the course of nephritis.

One of these cases (Case No. 67) illustrates the probable accidental occurrence of blood which at the second tapping was not present, but instead the fluid had the characteristics of the typical transudate.

(To be continued.)

[6] Soc. Med. des Hôp. de Lyon, 7 Mars, 1902.
[7] Naunyn. *Loc. cit.*
[8] Litton & Wolff. Deut. Aerste Zeit. 1901. No. 18.
[9] Landouzy. De la pleurisie dite a frigore. Manifestation de tuberculose. Rev. de Med. 1886, iv.
[10] Le Damany. Recherches sur les pleurisies fibrineuses. These de Paris, 1897.

Clinical Department.

SUB-GLOTTIC TUBERCULAR LESIONS OF THE LARYNX.*

BY THOMAS AMORY DE BLOIS, M.D., BOSTON.

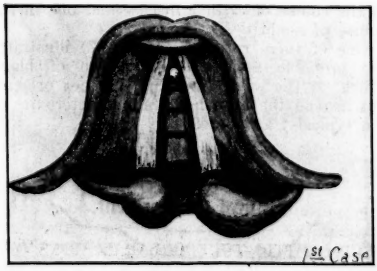
It has always been a question for argument as to whether tuberculosis is ever primary in the larynx, and any instances which throw even a feeble light on this subject seem to be worthy of being reported.

There have been, of course, numerous cases of apparent primary tubercular lesions of the parenchyma of the larynx, where the absence of physical signs in the lungs and the constitutional disturbance would seem to indicate that the larynx was the point of first infection, but these two cases which I report were already well advanced in lung disease before the subglottic

* Read at the annual meeting of the American Laryngological Association, June, 1904.

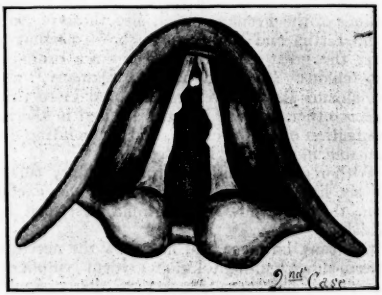
space became involved. Besides this, tubercle bacilli were found in the sputa on the first examination. I have never known tubercle bacilli to be found where there were no physical signs. In sections of a tubercular larynx, even where there is deep ulceration, demonstration of the presence of bacilli is far from easy. My cases were both from the Boston City Hospital.

My first case was a young Irish lad, Hugh W., and his history and appearance are best stated in the words of the Medical Department, to which he was referred. His age was twenty-three, and he was a butler by occupation. As to his family history, his father and mother are alive and in good health; four brothers and three sisters are in the same condition. One brother died of diphtheria, and two others of some unknown cause in infancy. The patient had measles when a child, pneumonia at eleven years, also an abscess in the throat. He never had venereal nor rheumatic disease and does not use alcohol nor tobacco. He has had a cough since July, 1903. The sputum is yellow; there is persistent cough. He had sore throat for three weeks. The dyspnea was so severe as to cause him to give up work. His appetite was fair. He has lost nineteen pounds of weight. He weighs one hundred and sixteen and a half pounds. His physical examination shows him to be poorly developed and poorly nourished. Heart is systolic at apex. Apex beat visible and palpable in fourth interspace inside nipple line. Right border in line with right border of sternum. The lungs show dullness in left apex, to second rib, to right apex. There were rales in both apices, and front and back, and in base of left lung (fine musical), occasional squeaky rales heard above spine of scapula on the right. Tubercle bacilli were present (Feb. 26). On laryngeal examination the larynx was observed to be somewhat hyperemic, the voice was not hoarse, the arytenoid cartilages were not much enlarged, the vocal cords were somewhat reddened, but the edges were sharp and smooth. Between the cords and in the region of the anterior commissure could be seen a round, red swelling situated about an inch subglottic. This first examination was before the physical examination was made, and was about the middle of February. I believed this to be a subglottic abscess, and so entered it on the records.



Two days after this the supposed abscess had either ruptured or broken down and presented the appearance of a slightly raised circular swelling with a white ulcerated centre. The rest of the larynx did not show the evidences of tuberculosis in a marked degree. Suspecting the tubercular origin of the lesion the patient was sent to the medical department, and the before-mentioned report was received. A specimen of sputa was furnished the pathological department and a report of the presence of "T. B." was returned. Under constant local applications of lactic acid, together with the use, internally, of "Creosotal" the subglottic ulcer slowly healed, the patient gained weight, and as the laryngeal condition did not interfere with deglutition, there seemed no reason why this patient should not secure an arrest of the tuberculous process in the larynx. From the advancing disease in the lungs, however, this patient went down rapidly, although the throat complications did not return.

My second case came to the City Hospital clinic within a few days after my first, and so much did the conditions of the second larynx resemble the first, that I might have mistaken the two patients (except that the second was a Swede and the first an Irishman). Karl H. was aged twenty-four years and was born in Sweden; was an upholsterer by trade. A little over three months ago was hoarse and came to see what the matter was. The vocal cords and arytenoids were somewhat swollen and slightly reddened. Below the anterior commissure, exactly in the same position as the first case, was a similar open ulcer. The patient was sent to the medical department for physical examination, and the following report returned:



Karl H., aged twenty-four, Swede, upholsterer. Father and mother are living and well. Two sisters and four brothers are living and well. There is no lung trouble in the family. He has always been well; the first time he ever went to a doctor was to the Throat Department for his hoarseness. About three years ago he had gonorrhea which was cured in three weeks. He uses no tobacco nor alcohol; once in a while uses a little snuff. Bowels are regular, he sleeps well, his appetite is good. Two months ago he began to feel lazy, and not so strong. He commenced to be slightly hoarse nine weeks ago, and this brought him to the hospital a short time ago. He expectorates about a tablespoonful morning and night; the color is green and white, and thick. He coughs mornings and evenings, and sometimes during the day. He sweats very little, if any, and sleeps well at night. No pain in throat at any time; no pain anywhere. He does not feel so strong now. He thinks he has lost seven and a half pounds in past one and a half years. Now weighs one hundred and thirty-five pounds. Does not know what his best weight was. His color is good, tongue coated, slightly cyanotic. Heart negative, save for soft systolic at pulmonary area. *Lungs:* Dullness with moist rales at right apex. Abdomen and legs

negative. This case retrograded very rapidly; by the time I made my sketch, the ulceration had crept upwards and involved the edges of the cords. Aphonia came on, deglutition became difficult, and death came a little quicker than in the first case where the larynx did not become ulcerated. It is rarely that ulceration below the vocal cords is seen primarily.

TECHNIQUE OF GASTRO-ENTEROSTOMY.[1]

SPECIAL PREPARATION OF PATIENT FOR OPERATIONS ON THE STOMACH.

BY C. A. PORTER, M.D., BOSTON.

In emergencies such as perforation, or acute gastric hemorrhage, no previous preparation of the patient can be made. It must be borne in mind, however, that, if possible, the rectum should be thoroughly emptied, previous to or during anesthesia, in order that subsequent enemata may be given.

In operations of election, attempts may be made, first, to improve the nutrition and anemia; second, to empty the stomach, and to render it and the upper intestine as free from bacteria as possible; third, to minimize shock.

(1) Improvement of nutrition and anemia. On carefully reviewing the various and varying opinions of authorities on the value of rectal feeding, I have concluded that it is overestimated. I am not speaking of those cases in which, from the necessity of resting an ulcerated stomach, the rectum is used because the stomach cannot be, but of protracted attempts to improve the nutrition, previous to operation, by nutritive enemata. It is doubtful if a patient at rest can absorb from the rectum more than two thirds to three fourths of the amount of nourishment to maintain tissue equilibrium. Fluids are, of course, readily absorbed. It is more than likely that many reported cases of weight sustained for long periods give an erroneous idea that the tissues in contradistinction to the fluid portion of the body have not suffered. In cases which have received no proper medical treatment, and in those who have pyloric obstruction and starvation, it is a nice question of judgment how much preliminary treatment should be given. In the cachectic, especially in cases of stasis, attempts should be made for a week or ten days, by daily or twice daily stomach lavage, to thoroughly cleanse that organ. Easily digested foods, giving small residue, may be given at short intervals, such as egg white, beef juice, thin soups, peptonoids, alcohol, sugar solution, etc. The character of the fluid which is used in washing is of secondary importance, as the effect is almost entirely mechanical. Warm saline, bicarbonate of soda, or boracic acid solution, are to be chiefly recommended. The value of antiseptics, such as resorcin, carbolic acid, beta-naphthol, etc., is doubtful and certainly much inferior to mechanical cleansing. In general, not more than a week should be given up to such preliminary treatment, and often a period of three or four days will accomplish all that can be done. Rectal feeding in these cases may be given with two objects, — to supplement absorption by the stomach, or to accustom the rectum to enemata, which will be used subsequent to operation. The amount, as a rule, should not exceed eight to ten ounces, three times in twenty-four hours. In addition to stomach and rectal feeding, the subcutaneous use of sterilized olive oil and 10% glucose solution has been recommended. It would seem best to reserve the use of oil and sugar for exceptional cases of very marked cachexia or malnutrition. It must be remembered that the sugar is slowly, and the oil very slowly, absorbed, so that effects from such feeding must not be expected for several days. In cases of marked gastric stasis, which have not been treated, improvement may be fairly rapid, both in anemia and nutrition. The weight gained, however, may be rapidly lost, and operation should be done at the first step backwards. In general, as I have said, too much reliance should not be placed on attempts to build up patients by nutritives.

In cases of gastric stasis, the amount of urine is apt to be small. For two or three days previous to operation, the patient should always have sufficient liquids, either by subcutaneous infusion, or large saline enemata.

(2) As a result of Harvey Cushing's work on the "Bacteriology of the Upper Intestinal Tract," published in Welch's *Festschrift*, attempts have been made to render the part to be operated upon as free as possible from bacteria. In a considerable number of cases, the contents of the stomach and upper intestine have been proved to be sterile, as the result of the following treatment:

Thorough gastric lavage, once or twice daily, until the fluid returns clean, careful attention to carious teeth and suppurating gums, with the frequent use of antiseptic mouth washes. Free catharsis by salines, in those cases in which the condition of the patient does not contra-indicate it, and the administration of nothing but sterilized food and boiled water by mouth. The value of gastric lavage, and cleanliness of the mouth, will be granted by all, and few will object to saline cathartics. But the value of sterilizing food is open to some question, as it must pass through a cavity necessarily unclean. Egg white, soups, tea, alcohol, are probably relatively free from germs, and the value of careful sterilization is somewhat doubtful. Whatever the judgment of the surgeon may dictate about the amount of such preliminary treatment, it is always of advantage to give nothing but easily digested, soluble food, for thirty-six to twenty-four hours previous to operation. The stomach should at least be thoroughly emptied and washed out on the evening before operation after which no food should be given. The operation should be done in the morning.

Depending upon the condition of the patient, and the difficulty of using the stomach tube, a washing previous to operation may be used in those cases in which there is evidence of distention of the stomach. A previous cocainization of the pharynx, with 4% cocaine, part of which may be swallowed, allows easier passage of the tube. Five minutes should be given, however, for the cocaine to act to best advantage. Two hours before operation a nutritive enema, with salt solution, up to a pint, should be given.

It is difficult to estimate the value and possible dangers of washing out the stomach after anesthesia has been induced. In some cases this procedure acts well, in others it has seemed to me that the gastric contents passed up the esophagus, and that the danger of inhalation was increased by the anesthesia and the obvious derangement of deglutition from the presence of the tube. If used, the tube should have a large caliber.

(3) Avoidance of shock. There is probably no poorer subject for operation than a case of advanced cancer of the stomach, with co-existing obstruction, starvation and anemia. Careful attention to prophylaxis against shock will here be well rewarded. The room should be warm, 72 to 75°, the patient should be completely enveloped in a flannel suit and well-covered with blankets, about which hot water bottles should be placed. Anesthesia should always be as light as is

[1] The following papers on the general subject of gastro-enterostomy were read at the Surgical Section, Suffolk District Medical Society, Feb. 3, 1904.

compatible with the avoidance of vomiting and the relaxation of muscles. The abdomen should be prepared before the anesthesia is started, and covered with sterile towels. The operation should be begun immediately after the patient is anesthetized, and continued uninterruptedly until completion. No delay which can be avoided is admissible. Rapid though careful operation has much to do with ultimate success. Morphia and atropine given one-half hour before operation often cause a quieter anesthesia.

REMARKS ON EXPLORATORY LAPAROTOMY IN CACHECTIC SUBJECTS.

BY DANIEL FISKE JONES, M.D., BOSTON,
Surgeon to Out-Patients, Massachusetts General Hospital.

THERE is little to say about "the technique of exploratory operations in cachectic subjects," except to emphasize a few well-known facts. Some here would undoubtedly say that there was nothing to say, as such patients should not be operated upon, but that some of these patients deserve an exploratory laparotomy many will admit. Those who oppose exploratory measures usually overestimate the suffering, and especially the mental suffering. Many of these patients are perfectly indifferent to what is done to them while some ask for an operation. That they do suffer for twelve hours cannot be denied, but after that the pain is often less than before operation. In a recent case the patient said he would be all right if he could only be relieved of his pain. After an exploratory laparotomy his pain almost entirely disappeared and when seen a month after leaving the hospital, his only complaint was that he was very weak. In another recent case of cancer of the cardiac end of the stomach the pain was much lessened after an exploratory laparotomy, and the patient gained five pounds in six weeks. This was undoubtedly due in great measure to the careful supervision of diet after operation by Dr. Joslin.

Looking at these cases from a purely humanitarian point of view, one might say that it would be a blessing if the patient did not recover from the ether, but should we be willing to take the part of the executioner? We must start with the idea that it is just as important that these patients should live as any other class of patients.

Because of their weakened condition and lack of resistance, it is important to save time and to cause the least possible amount of shock. To begin with the anesthetic, the most satisfactory one in all cases is ether, carefully given, and in quantities sufficient only to keep the patient quiet. Given in this way and for a short time it never becomes a depressant; the surgeon, therefore, must not be deceived by the excellent condition of the patient into prolonging the operation beyond the time absolutely necessary for it.

Nitrous oxide would not keep the patient sufficiently relaxed for a long enough period in most cases. Local anesthesia leaves the patient in full possession of his senses which is inadvisable in these cases where hopeless malignant disease is usually found, because of the mental impression such discovery would make upon the patient. Although it is justifiable to use cocaine in cases where there is some hope of saving the patient's life and the condition of the patient is such that it does not warrant giving ether, it seems to me to be unjustifiable to put a patient through so much suffering in an exploratory laparotomy. For although the incision may be made down to the parietal peritoneum with little pain, it is impossible to open the abdomen and explore it with the finger without excruciating pain. If the patient is not sufficiently strong to stand ether narcosis the operation should not be done.

The incision should be in the median line, unless there are very definite reasons for going to one side or the other, because there is less bleeding, an important factor in saving time. Abdominal surgery has gone beyond the use of the director in such incisions, and the time required now to open the abdomen should be seconds rather than minutes. An incision of from two to two and a half inches is usually sufficient; the size is important because of the length of time required to close the larger incisions.

Before exploring the abdomen, the surgeon must have it definitely in mind as to what is operable and what is not.

Mayo-Robson gives the following conditions as inoperable:

(*a*) Cases in which extensive and extremely dense adhesions to the liver, pancreas, gall bladder, etc., are present.

(*c*) Cases in which a widespread enlargement of lymphatic glands is found.

(*c*) Cases in which secondary deposits in the liver or elsewhere are seen.

Although Mayo-Robson does not consider mural carcinoma of considerable extent inoperable, it must be to the great majority of surgeons in cachectic subjects. Von Mikulicz hopes that cancer of the cardiac orifice may come within the safe reach of capable surgeons, a hope which has not yet been realized.

The surgeon should know his own ability and limitations, and should estimate the power of the patient to withstand an operation before he opens the abdomen, that there may be no delay then. To shorten the operation and avoid shock as much as possible the surgeon should be the only one to examine the abdomen and the sole judge as to the advisability of proceeding.

If one expects to make a positive diagnosis in every case after opening the abdomen he will be disappointed, for it is impossible in many cases. I have recently seen an autopsy where a hard mass was found at the pylorus. The pathologist was unable to make a diagnosis even when the mass was removed and put before him. If this is true how can a surgeon expect always to make a correct diagnosis on the living.

Enlarged lymphatic glands are not safe specimens to remove for examination, as they may be simply inflamed and not infiltrated with new growth.

Enthusiasm for pathological specimens should be restrained in all cases where the diagnosis can be made with any degree of certainty, or where the condition is evidently inoperable, for removal of sections complicates an exploratory laparotomy tremendously in weak subjects. It prolongs the operation very materially and in some cases the hemorrhage following is a dangerous complication. The use of gauze for the purpose of walling off should be avoided if possible, for its use increases shock and makes convalescence more painful.

The method of suturing the wound is important in these cases for the patient should be gotten up early. The most rapid method is the simple through and through suture with silkworm gut. A safer method is to place the silkworm gut sutures and then put in a row of interrupted silk sutures including the sheath of the rectus, the rectus, and peritoneum, after which the silkworm gut sutures are tied. This makes a strong wound with all layers held firmly together, a very important point in cases where the patient gets up early.

If one would improve his statistics, five or ten minutes must not be wasted in preparation after the

patient is fully etherized; he must operate rapidly, make a quick decision as to whether the case is operable or not, and must be the only one to examine and decide upon the condition. I believe that one can open the abdomen, make a diagnosis and close the abdomen in ten minutes or less, as well as in half an hour.

THEORIES AS TO THE CAUSE OF THE VICIOUS CIRCLE.

BY DR. F. G. BALCH, M.D., BOSTON.

THERE are numerous different theories as to the persistent vomiting which at times follows gastro-enterostomy, but no theory which has yet been advanced explains all cases. This much seems certain. The so-called vicious circle is extremely rare except in cases of malignant disease. This at least suggests the possibility that it is not so much the particular operation that is chosen to relieve the condition but the condition itself which is responsible for this dangerous phenomenon. Most of the operations which have been devised to avoid circular vomiting are based on the idea that there is a circle established by which the contents of the duodenum are returned again to the stomach and that the presence of the bile and pancreatic juice in the stomach gives rise to the vomiting. Others again believe that the contents of the jejunum are forced back into the stomach by the muscular effort in vomiting after ether, and that this causes the disturbance. If it were bile alone or the combination of bile and pancreatic juice it is hard to see why the trouble should occur only in the malignant cases. Moreover, Moynihan has cut the jejunum and sutured the proximal end, the distal end being inserted into the stomach. No harm came of it, though all the secretions which were poured into the duodenum had to go back into the stomach. Again, in animal experiments, the bile duct has been ligated and the gall bladder anastomosed with the stomach. The animals thrived. Again, bile has been regularly introduced through a gastrostomy without ill effect. Kocher, who at the time of writing his book had had one hundred successful cases where the operation was done in non-malignant cases but who had lost nearly one third of his malignant cases, advises the Y method of operation where there is cancer. He says that in these cases the stomach contents ferment very rapidly and that the irritating products cause the vomiting. This theory of irritating products of decomposition seems the most tenable. Outside of what we might call the chemical theories are the mechanical causes. The advocates of the posterior operation say that the distended colon gives pressure on the loop of jejunum and that the front opening does not drain the stomach when the patient is recumbent. Those who are enthusiastic for the anterior route say that there are many adhesions found about the loop of jejunum where the mesocolon is split to get at the posterior wall of the stomach.

Adherents of both the anterior and posterior route can show most excellent statistics, and it seems probable that either operation properly done will avoid the "vicious circle" except in malignant cases, and there it is probable that neither will be invariably successful.

ANTERIOR VS. POSTERIOR GASTRO-ENTEROSTOMY.

BY HUGH CABOT, M.D., BOSTON.

AT the outset of any discussion of this subject I wish to suggest certain difficulties of arriving at a positive conclusion.

In the first place, much confusion is likely to occur from a discussion of results in which it does not appear whether the term is intended to mean immediate results or permanent results. It may well occur that any given operation may give good immediate results and poor ultimate results as compared with another somewhat similar operation, and thus much confusion is introduced into the discussion.

In the second place, the results of any individual operator can with difficulty be compared with those of any other as there is a large variation in the pathological condition of the various cases, and in the age, nationality and social standing of the patients.

In the third place, statistics even of a large number of cases are not only unreliable but frequently positively misleading, on account of the sources of error above noted. In speaking of the statistics of mortality after operation for gastric cancer Mr. Mayo-Robson says, "To show how absurd this fettering of our practice to statistics may be, we may quote the figures of Carle and Fantino, who have an operative mortality of about 40% in gastro-enterostomy and of 20% in pylorectomy."

I wish, further, to disclaim any desire to be dogmatic, and if the appended statements appear so the shortness of the time at my disposal should bear the blame.

ANTERIOR OPERATION.

Advantages.

1. Simplicity and rapidity of operation. There are a considerable number of cases in which a short, quick operation is highly desirable, and may be necessary to the exclusion of greater niceties of technique. In this class of cases, the anterior operation has distinct and obvious advantages which may make it the operation of election. These are largely cases of cancer in cachectic subjects in which gastro-enterostomy is done for drainage pure and simple, and no permanent or curative effect is expected. It may at times be the operation of election in patients much reduced by hemorrhage from gastric ulcer, for somewhat similar reasons.

2. Slightly greater safety of the operation. It appears to be held by the majority of surgeons that the anterior operation is slightly safer than posterior. This is in great measure due to the fact that the operation can be done, so to speak, upon the surface, and greater accuracy of suture can be obtained by those not familiar with other methods. The warm advocates of the posterior operation will probably not be willing to admit this advantage, and it may fairly be said that experience with the posterior operation will tend to minimize or obliterate any advantage which the anterior operation may have in this respect.

Disadvantages.

1. It is anatomically less perfect. By this I mean that with the patient in the recumbent position, an anterior opening will drain less rapidly and completely than a posterior opening, provided always that the openings are made at the same level as regards the lower border of the stomach. It may also be noted that it is necessary to bring a coil of small intestine into a position which it does not ordinarily occupy, and we are not, therefore, in a position to foretell in how far it will adjust itself to the new conditions. It would seem theoretically to be a less perfect procedure.

2. So-called "Vicious Circle" seems to be more common after the anterior operation. As no satisfactory explanation has been given of the occurrence of this phenomenon, it is impossible to say to what it is due. It seems probable, however, that in many cases it is due to an anatomically faulty arrangement by which the stomach contents go into the proximal and not into the distal segment of the intestine. If experience bears out the view that it is a more common compli-

cation after anterior gastro-enterostomy, it may perhaps be due to the greater length of the proximal segment and the greater possibility of angulation at the point of suture.

POSTERIOR GASTRO-ENTEROSTOMY.

Advantages.

1. More perfect drainage of the stomach. This advantage has already been touched upon, and is due to the fact that a posterior opening will drain better with a patient in the recumbent position, and probably drain fully as well with the patient in the erect position.

2. It is anatomically more perfect. This advantage, if such it be, lies in the fact that the anastomosis is made between portions of the digestive tract which normally lie close together, and that therefore little disturbance is necessary in order to make the attachment. The first portion of the jejunum normally lies behind the stomach, separated from it only by the mesentery of the transverse colon. It can, therefore, be attached to the stomach by simply making an opening through this mesentery.

Disadvantages.

1. More difficult, less rapid. While it is not to be denied that speed is often of great importance in operations upon the stomach, it has been shown that the amount of time required to make a posterior anastomosis is not, in the hands of those familiar with the technique, sufficiently long to be a large factor in the mortality. It is probably safe to say that ten minutes' additional time will cover the amount necessary, and there must be few cases in which this will seriously affect the ultimate result. It is, nevertheless, a distinctly more complicated operation, and for those unfamiliar with the technique, certainly a more difficult one.

2. Greater danger if leakage occurs. The operation of anterior gastro-enterostomy is done, so to speak, upon the surface of the body, and when the parts are returned to the abdomen, they lie just beneath the abdominal wall and in immediate proximity to the omentum. These two facts conspire to make the results of leakage less serious after the anterior operation. With the posterior operation on the other hand, if leakage occurs, the contents will be distributed freely throughout the peritoneal cavity, following the root of the mesentery. Little or nothing is to be expected from the omentum, and, unless the danger of leakage is forestalled by drainage, serious results are almost certain to occur. Too great stress must not, however, be laid upon this condition for it will be found that the vast majority of operators, whether by the anterior or posterior method, close the abdomen completely, and thus make no effort to provide against leakage. This tends to show that they do not regard the danger of leakage as serious, and are prepared to accept it, when it occurs, as one of the rare complications. It has been my own view that with a little experience it should be possible in the vast majority of cases to make the suture so secure that the danger from leakage will be but a small factor in the mortality after this operation.

In summing up the present position of these operations we may say:

First: That the anterior is the easier operation and likely to show a slightly lower operative mortality.

Second: That the posterior operation is a theoretically more perfect, practically more difficult operation, likely to give better permanent results at a slightly greater risk.

Third: That in any individual case the surgeon must be guided:

1. By the nature of the case, as, for instance, extensive adhesions or cancer of the posterior stomach wall, making a posterior operation very difficult.

2. By his own experience and his knowledge of his own surgical capacity.

GASTROENTEROSTOMY — AFTER-TREATMENT.

BY E. A. PEASE, M.D., BOSTON.

THE ideas on after-treatment of gastroenterostomy have changed much since 1892, when, for the first time, I took charge of a case at the Massachusetts General Hospital in the service of the late Dr. John Homans, to whom most of the unusual surgery of the abdomen came at that time. Dr. Homans, and other surgeons with much experience in abdominal cases, felt that the nourishment of such cases for the first ten days should be chiefly by the rectum, and so, in this case, I gave nothing by the mouth for the first week, except teaspoonfuls of hot water, and milk with lime water. At the present time we begin much earlier to feed by mouth, and use such liquids as milk and lime water, beef juice, Valentine's meat juice, veal tea, black coffee, brandy and water, and occasionally very dry champagne may be given in teaspoonfuls, every half hour at first, and soon increased up to half ounces every hour. It is well to begin immediately after the ceasing of the nausea or vomiting the patient may have had from ether; and then gradually increase things to eat as rapidly as you would after an ordinary case of laparotomy. In fact, even more quickly, in order to support the strength of the patient, because when this operation is done it is usually for malignant disease and here nourishing food is important. For instance, my last case had had nothing except milk and lime water for five weeks, and had lost about forty pounds in three months. I began to feed him beef tea, and milk and lime water the evening of the operation and broths the next day, soft solids after that, and after the fifth day minced meats, as chicken. There must be care that the food is thoroughly chewed and all meats minced before being taken into the mouth, for if a Murphy button is used a large piece of meat might clog the opening. This man left the hospital in three weeks, eating three good meals a day, and had gained markedly in flesh and strength. The pyloric opening having been practically closed before operation, there was no chance for the food to get through. He vomited only once after operation, and two weeks after leaving hospital was doing his regular business down town. Of course this case gained exceptionally rapidly, and I felt it was due to the nourishment. Before operation he vomited every day or two regularly, and could only retain milk and lime water.

Although early feeding is so important in keeping up the vitality of the patient, it is also important to take great care that no unusual strain comes at the seat of the operation, as would be given by vomitus or flatus. To avoid the after vomiting I have the stomach washed out just before taking ether, and also the patient is given a small dose of morphine $\frac{1}{4}$, and atropine $\frac{1}{100}$, subcutaneously. The atropine, drying up the secreting glands, temporarily stops the flood of mucus, which not only is apt to be swallowed and to irritate the stomach, but also bothers the anesthetist. The morphine tends to produce sleep as patient comes out of ether, calms restlessness and allows the use of less ether. Much morphine is apt to constipate and disturb the digestion, and I rarely use any more except on the evening of the operation, when sleeplessness, restlessness or pain may demand it.

The flatus is important to get rid of, and for getting rid of this a rectal tube should be placed in rectum soon after recovery from ether, and if no gas comes,

and there is distention, I have an enema given of suds and glycerine; and this repeated every four hours if necessary for distention. I usually try to have the bowels moved by these enemata; but whether successful or not, I give calomel gr. $\frac{1}{10}$ every hour, till one grain is given, beginning the evening of the operation. I do not, however, use anything effervescing, like Seidlitz powder, until after forty-eight hours from the operation, because any distention of the stomach might tear away some of our work, but after forty-eight hours the adhesions have become extensive enough to withstand the possible inflation of the stomach. Of course one may order the Seidlitz given after the effervescence has ceased, but orders have been misread and the nurse has given Seidlitz effervescing, which luckily only gave the patients a few gripes but no serious harm. I don't think the adhesions are always firm enough in the first twenty-four hours after such an operation as gastroenterostomy to risk giving effervescing draughts.

Flatulence tends to produce nausea and vomiting. If nausea and vomiting exist, tablets of cocaine, gr. $\frac{1}{10}$ hourly often stop it. If due to bile, drainage of the gall bladder I have used successfully.

The position of the patient in bed is important after gastroenterostomy, the head and shoulders being raised on a pillow or two to allow the contents of the stomach to drain into the intestine; and I believe also this position better allows the bile to flow naturally along the intestinal course instead of flowing back into the stomach as it sometimes does.

The above points are the chief ones in which gastroenterostomies differ in their after-treatment from laparotomies in general, and as you all know the treatment of laparotomies, I will not discuss the question further.

Reports of Societies.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

Twenty-first annual meeting held at Philadelphia, June 2–4, 1904.

The meeting was called to order by Dr. J. C. Wilson of Philadelphia, the president, who made an opening address. He called attention to the fact, Dr. Benjamin Rush was the first American physician to recognize the importance of climatology as a special branch of medicine. His papers on "The Climate of Pennsylvania" and on consumption, yellow fever, etc., were referred to. The later work for consumptives in Philadelphia and the foundation of a national association for the study and prevention of tuberculosis were mentioned. The work of the American Climatological Association has been one of the initial forces in the world movement which started about the time of its organization and aroused the Western world from its more than Oriental apathy in regard to pulmonary consumption. Its transactions constitute an accurate historical record of that movement from its inception.

Dr. W. H. Flint of Santa Barbara, Cal., read a paper embodying his observations at Santa Barbara during a residence of nine years, with statistics covering twenty-five years. The coast line runs east and west for twenty-five miles, and the Santa Inez range of mountains protects this coast region from the north winds. The proximity of the Mojave desert exerts a powerful influence, causing a cool ocean breeze by day and a dry air from the desert at night, producing a sudden fall of temperature as evening comes on. This land breeze may last far into the night, gradually subsiding until a perfect equilibrium is established. The town has 8,000 inhabitants. Its climatic features are its abundant sunshine, its low average rainfall, about seventeen inches, its notable uniformity of temperature and its comparatively low relative humidity. This, during winter, averages 67%; during spring, 71%; in summer, 75%, and in autumn, 71%.

At Pine Crest on the mountain side the relative humidity is from 5 to 12 points less. The wind velocity averages 3.5 to 4.5 miles an hour. Patients with chronic rheumatism, asthma and advanced tuberculosis do badly at Santa Barbara. The climate is favorable for patients with neurasthenia, cardiac disease, renal affections, arrested pulmonary tuberculosis and chronic bronchitis. It is suitable especially for young people and feeble and old persons, convalescents and pleasure seekers.[1]

Dr. J. H. Elliott of the Muskoka Sanitarium read a paper on the

Climate of Muskoka, Canada.

The district considered lies on the eastern shores of Georgian Bay; its southern portion is about one hundred miles from Toronto. It is frequently called the "Highlands of Ontario" and is near the Algonquin National Park, a reservation of over one million acres. The mean daily maximum temperature during June, July and August is 77.4° F., and mean daily minimum, 53.3° F. There is immunity from hay fever. The climate is excellent for neurasthenics. The district has been growing in favor as a station for the treatment of pulmonary tuberculosis. The two sanatoria are meeting with the greatest success, quite comparable with that of the institutions in the Adirondacks. The climate is similar, being free from rain, fog and dampness in winter; the spring and autumn, rainy but beautiful; the summer, ideal in having warm days but cool nights. No dust, no malaria and well suited for all pulmonary invalids.

Dr. Lawrason Brown of Saranac Lake, N. Y., read a paper embodying

Some weather observations in the Adirondacks.

Saranac village has an elevation of 1,550 feet, and the Adirondack Cottage Sanitarium, a half mile distant, has an elevation of 1,625 feet and has a northeastern exposure. The soil is a light sand, very porous, and glacial drift and moraines are common. Deciduous and evergreen trees are in about equal proportion. The monthly mean temperatures vary from 14.98° F. in January to 66.24° F. in July. A temperature of 90° F. has been recorded nineteen times in ten years. The highest recorded was 95° on July 5, 1897, and the lowest, —38° on Feb. 16, 1896. The average annual precipitation is 34.5 inches. The yearly snow-fall averages 90 inches. With the exception of June, July and August snow falls every month. One fourth of the precipitation is in the form of snow. About one third of the days are clear; one third cloudy, and on one hundred and forty-five days there is precipitation. The climate is cool and moist during seven months of the year; cold and dry during five months. The entire region enjoys freedom from dust and disagreeable winds. The forests break the winds and the snow and rain prevent dust and purify the air.

Dr. Carroll E. Edson of Denver presented a

Meteorological study of the winter of 1903–04.

The winter was an unusually severe one in the eastern portion of the United States, but Denver had a warmer winter than usual by a daily average of from

[1] For the discussion on this paper and the three succeeding papers, *vide infra*.

1.8° to 8.3° F. Of the 152 days studied, Boston had 51 below freezing all day; New York had 50; Buffalo, 74; Chicago, 85 and Denver but 8. Buffalo had one day with a maximum of zero and Chicago one day with a maximum below zero. Tables showing maximum and minimum temperatures, humidity, sunshine, wind and precipitation were shown. Denver had less wind than other cities in the following proportion: Boston, 84; New York, 115; Philadelphia, 79; Buffalo, 128; Chicago, 127; Denver, 66. The obvious lesson drawn from this study was the importance and advantage of selecting the climate in the care of patients having pulmonary tuberculosis. The particular advantages of the climate of Denver were presented in the light of this meteorological study.

The foregoing papers were then discussed:

DR. W. JARVIS BARLOW of Los Angeles said that the fogs on the Pacific coast occur especially in May and June. It seems that the chronic cases of tuberculosis and rheumatism do better from the first of July until the first of January; then from the dampness and fog occurring more or less from January to the first of July, they do better away from the coast, up in the foothills, or up in the higher altitudes where the fog does not occur.

The equilibrium occurring at night is marked along the coast, and it allows the people to sleep outdoors with comfort. The interval from 5 to 8 P.M. is the time when the difficulty from dampness occurs.

DR. E. O. OTIS of Boston called attention to a very admirable paper by Miss Lillian Brandt on the

SOCIAL ASPECTS OF TUBERCULOSIS,

in which a large number of statistics were given and among them those of many large cities of the United States with the mortality from tuberculosis; the cities were arranged in a list with the mortality increasing downward; and at the head of the list stands Buffalo with the least mortality of any, although it has the smallest per cent of sunshine and the largest per cent of rainfall.

DISCUSSING PAPERS OF DRS. ELLIOTT, BROWN AND EDSON.

DR. DELANCEY ROCHESTER (Buffalo): If we can get a climate that gives us the most favorable results, the sooner we send our patients to that climate the better. But we cannot send our patients there; the vast majority of them cannot go to Denver and we have to treat some of them at home; and I was going to quote this very same paper that Dr. Otis has just quoted to show that we can do pretty well, even in dirty, wet and cloudy Buffalo, with patients suffering from tuberculosis.

I have had four cases of moderately advanced tuberculosis recover in Buffalo; three of them had cavities and one of them had a cavity in both lungs and they recovered in Buffalo on simply living out of doors and paying attention to food and hygiene generally.

I would like to know how some of the California cities compare with Denver and the eastern cities. You know many of our friends living in California tell us that California has a great deal better climate than Denver and other places for the cure of tuberculosis; and I should like to have had the same comparison made with reference to the California cities as in the case of these other cities.

DR. BEVERLEY ROBINSON of New York called attention to the fact that in tuberculosis there is a certain limitation as in almost all diseases with which we are familiar, and that limitation is to be always kept in view in our appreciation of most of those conditions which we are called upon to investigate, especially when we record any particular resort as being especially favorable to special diseases.

DR. W. JARVIS BARLOW (Los Angeles, Cal.): I made some inquiry throughout the western slope, and the southwestern part, especially, of Arizona and California; and I find in general all through these sections that the past winter was milder than usual; and two years ago the winter being milder here in the East it was more severe with us in California.

DR. E. FLETCHER INGALS (Chicago): I regret that but one winter was taken in the comparison of the various cities. Denver had a beautiful winter last year as I know; but no one can tell what next winter will be; last winter we had it cold in the East; we may have it warm this year; the paper well illustrates the necessity of considering many years; but the paper brought out strongly the fact that we must not consider simply the number of rainy or cloudy days, or the open-air treatment, or the food alone, but we must carefully weigh all of the factors that, taken together, constitute the patient's environment. We forget in studying the effects of climate, as well as of other forms of treatment, that we only have to go to the dead-house to find that 25% of all persons dying of other diseases have had tuberculosis at some time; 12% die of this disease. Dr. Austin Flint said most of those who got well had never been treated for the disease; I do not think he laid this to the physicians, but that he thought they had not been ill enough to seek medical advice. I want to say one thing in reference to Chicago's climate, — that I can see nothing better to be desired; we can get any climate we want in the course of two or three days.

DR. R. H. BABCOCK (Chicago): Apropos of Dr. Ingals' remark, some wag has said that the climate of Chicago would be all right if it wasn't for the weather.

There are three points with which I am especially impressed in listening to the papers and the discussion this morning. The first is, that tuberculosis patients get well in any climate under any weather conditions, provided they are properly managed. The second is that unquestionably there are some climates in which the proper management of these tuberculous patients is very much easier. Now I think this last is a very important consideration. The members of the American Climatological Association are presumably all physio-therapists of more or less experience; and it explains why Dr. Rochester gets results in Buffalo which other men in Buffalo would not get. We who meet with tuberculous patients in consultation with the rank and file of the profession are only too sadly impressed with the ignorance, or indifference, or carelessness, or all combined, of the average doctor in the management of his tuberculous clientele. The average physician is not sufficiently informed concerning the best methods of utilizing climate at home, or he will not take the trouble to so impress his patients or so instruct them, as to render it possible for them to secure good results in the home climate; and therefore such papers as we have had this morning are very valuable in showing to the rank and file of the profession that if they will not properly manage their tuberculous patients at home there are climates to which they can be sent and where they will get results with very much greater ease.

The third point I should like to dwell on for a moment is that we are not to think merely of our tuberculous patients. The charts which have been shown illustrating the character of the climate in our eastern cities indicate that we, as physicians, should urge all persons who have any respiratory, circulatory, or renal disorders to get out of the winter climate at home when it is possible. I think we are apt to think of

climate with reference almost exclusively to tuberculous patients, and that is not right; we must think of these climates with reference to patients exposed to the dangers of bronchitis and pneumonia; and certainly the climates of California and Colorado cannot for a moment be compared in their disastrous effects on these patients with the climates where most of us are compelled to reside.

Dr. Henry Sewall (Denver): One word in protest against the notion that a person who is shown to be afflicted with consumption of the lungs has a very good chance of getting well. I don't believe anything of the kind. When one can discover tubercular lesion in the lungs of a man, I think it means that he has been progressively diseased for months, and very often for years; and provided that man does not change his habits of life — more important than that of habitat — I think that in the great majority of cases he dies. When I discover the signs of tuberculosis in a patient I feel as if he is on the brink of the precipice, and I advise him that the only reasonable hope for safety lies in definite hygienic habits and possibly a change of habitat as well.

Dr. Frederick I. Knight (Boston): It seems to me we were so impressed with the fact that a man could recover in any climate, that we forgot, really, that it was possible to give him the benefit of this very important climatic factor; and I think that we have been misled, also, by the post-mortem appearance of cured tuberculosis. We must remember that those cases where we find slight scars are generally in patients who have never had clinical tuberculosis; and we cannot judge by them of the proportion of possible cures in patients who have advanced to show clinical tuberculosis.

Another thing that has influenced our prejudices in regard to the treatment is the fact that we have got hold of cases so much earlier, and diagnoses are made so much earlier; and for that reason I was a little inclined to differ from the opinion just expressed, — that in regard to the possibility of cure. It seems to me in getting hold of the very earlier cases that we may, especially with the aid of the climatic change, get absolute cure and feel pretty confident of it in a large proportion of cases. Personally, in regard to advising change of climate, of course, I do not feel it is necessary in every case, but the fact that so many men formerly went out to the Rocky Mountains, for instance, with marked phthisical tuberculosis and got well without any particular care, from simple change, — went there and lived their ordinary life and got well when they surely would have died in the East, — still remains a very important argument in favor of change in some cases; and it seems to me that it is necessary above all to consider the conditions carefully in regard to each individual case when it comes up, including the climatic factor, in order that we may do our duty to the patient. If it is impossible, for any reason, to consider the factor of climatic change, then we must do the best we can at home.

Dr. W. F. R. Phillips (Weather Bureau, Washington, D. C.): Dr. Edson has shown us graphically the climatology or the climatic conditions of certain cities — Chicago, Buffalo, and others — that is, in the center of those cities. We should always bear in mind that there are certain atmospheric differences between the city and the country; that each city, especially a large manufacturing city, has peculiarly a climatology of its own, and its statistics taken, as is most often the case, in the central part of the city cannot accurately be applied to the suburbs of that city.

Dr. W. H. Flint (Santa Barbara): I think the discussion gives us a very hopeful outlook for the cure of tubercular troubles, no matter in what climate the attempt be undertaken, provided, as Dr. Sewall said, the patient is willing to change his mode of life. A great many people come to us and think they may stay in the hotel lobbies amid a cloud of tobacco smoke and go to all the evening entertainments and still get the benefit the climate is supposed to confer, which is a very great error.

Dr. Lawrason Brown (Saranac Lake, N. Y.): I was struck with the close similarity of the climate of Muskoka and the Adirondacks. I would like to add one thing, — that if our patient in the Adirondacks sat out only when the weather was warm and clear I don't think he would sit out very much. Dr. Sewall says the first three weeks he was there it rained. In regard to change of climate there is one point that has always struck me; the man who has not been accustomed to good hygienic surroundings, who has had poor food and bad environment, needs a change of climate very much less than a man who has had all those things.

Dr. Philip Marvel of Atlantic City, read a paper on

OCEAN BATHING.

The paper was partly historical. The sea bath was considered to be a mineral water bath with a strong temperature influence, which is shown by the slowing and enfeeblement of the pulse. This amounts to one or two degrees Fahrenheit and 15 or 20 beats. According to Dr. Gibbony, an English physician, there is an occasional lowering of 25° and 30 beats. In considering the special benefits other agencies must be taken into account, as, for instance, the force and movement of the water, the physical conditions of the strand, the distance of the dressing rooms, the time of the bath, length of exposure, etc. Dr. Marvel believes that the ocean bath, as practiced at the usual resorts, does more harm than good. Few people seem to attach much importance to the danger of either the prolonged exposure in the water or in the cool atmosphere, on the sand, in their wet garments. The majority of the bathers bathe for pleasure with a blind disregard of either its advantages or disadvantages. Bathers return very often cyanosed, with arterial capillaries contracted and internal organs and deeper vascular system greatly engorged, shivering and chattering. Dr. Marvel advocates a short bath, — ten, fifteen or twenty minutes, — and the necessity of prompt reaction. He denounced the practice of parading about the beach in bathing suits and lying on the sand and frequently returning to the water, believing that it insures progressive debility. Sea bathing is contra-indicated in cases in which there is arterio-sclerosis, organic heart disease, recent rheumatism, cholelithiasis or any acute gastro-intestinal or febrile disease.

Dr. R. G. Curtin read a paper on "Delirium Accompanying Heart Disease," and cited four cases.

Dr. Abraham Jacobi (New York): There are many heart diseases, but very few such cases; so it is not in the heart disease alone that the cause must be looked after. There must be an abnormal or a predisposing condition of the brain itself — either an abnormal circulation or an abnormal brain. We have heard that it is principally aortic anomalies in which Dr. Curtin's cases are met with. The disease of the aortic valves would give rise to anemia. We have been told that such attacks of delirium will come on after sleeping. Now during sleep there is either an increased anemia (which is normal), or in consequence of the recumbent position there may be, in predisposed brains and on account of circulatory disturbances, a hyperemia. Thus it is not exclusively the heart disease, as such, that gives rise to these conditions of delirium, of insanity; but it is the condition of the brain resulting

therefrom, or complicating the heart disease. I have seen a case of insanity (one of the first I have seen of that kind) that was complicated with, as far as I know, absolutely nothing else, as the final result showed. It was in a man of thirty odd years, who had to be sent to the lunatic asylum. I did not find anything in him except a hypertrophied and dilated heart and an old mitral incompetency. He was in the lunatic asylum perhaps six months; very probably he had more rest there than he had outside, and he came home "cured" of his insanity. Our lunatics are getting cured ever so many times, and readmitted and statistically cured again. He was not a drinking man and he was not syphilitic; but he got worse in the course of five or six years, and every time he got worse he was sent to the lunatic asylum, was kept quiet in bed, and during that time got well. Finally the compensation advanced to such an extent that he at last advanced to a responsible position in the interior of the state of New York. There he is yet. He has his heart disease, certainly, but with good compensation, and he has not been in the lunatic asylum these ten or twelve years, I think.

Heart disease has surely a powerful influence on the nutrition of the brain, but I have always looked for concomitant or predisposing conditions. In one case I found a history of syphilis in a young boy of fifteen or sixteen, with a moderate mitral incompetency. When he had been submitted to an anti-syphilitic treatment for a period, he got comparatively better, as far as I know during the treatment, because his syphilis got well. The majority of the few cases that I have seen were adolescents, not persons in advanced age, — ranging from fifteen to seventeen and eighteen years of age. We know that the disposition to mental disturbances is very great about and after puberty; in fact, the heart disease in every case, I believe, was a mitral incompetency sufficient to be the proximate cause of the delirium. I do not think that I have seen many cases, but the majority that I have seen were about that age.

DR. CHARLES E. QUIMBY of New York read a paper, "The Mechanical Treatment of Organic Heart Disease." The author made a previous communication to the Association in 1892, in which he demonstrated the relations of pneumatic differentiation to the several forms of pulmonary disease. Dr. Quimby believes that in the pneumatic cabinet we have the nearest approach to an ideal treatment of organic heart disease. The cabinet supplies circulatory force and reduces vascular tension, and thus favors nutritive repair; the heart is allowed to rest a little and recuperate. Clinical results corroborate this. Cases of aortic insufficiency are especially suitable for treatment. When the vascular tension is in excess of possible force expenditure on the part of the ventricle, a reduction of diastolic tension by the cabinet with an increase of propulsory force means restoration of circulatory equilibrium. In angina the cabinet affords rapid relief.

DR. SEWALL: It seems to me that in this, as in so many medical subjects, we have got to depend upon empiricism for our conceptions. I would like to know if Dr. Quimby has carried out experimental work to justify his claim of the increased hyperemia of the lungs with the inspiration under greater relative intrapulmonary pressure. I think that it is very important that not one thing be taken for granted in establishing the physical basis for our conceptions in climatology; and I do not see that the physical explanation of the happy clinical results follows *a priori*. I am asking for information simply, and would desire to know if experimental work has been done in this direction; I do not know of any such myself. Ordinarily we decrease, of course, the tension within the lungs at inspiration, and we know that the blood flows there in a greater stream. In Dr. Quimby's cabinet there is increase of intra-pulmonary tension, I take it, with inspiration, as in blowing up the lung by a bellows, so that the conditions are somewhat reversed. This is so vastly important a subject that I trust not one assumption will be made to explain the results unless it is on an experimental foundation.

DR. QUIMBY said he had never undertaken experiments to prove it for they are not required. There is a point in altitude or atmospheric rarefaction which produces very definite pulmonary hyperemia, and the same changes will be started by one or two inches of rarefaction that are manifested grossly at high altitudes. What Dr. Sewall states in reference to the circulatory changes under differentiation, that blood is driven out of the lungs during inspiration and drawn in during expiration, is entirely correct.

DR. J. O. COBB, of the U. S. Public Health and Marine Hospital Service, read a paper entitled "Is Milk a Factor in the Spread of Tuberculosis?" The author holds that Koch was substantially correct in his claim, though he made rather too positive a statement, that cattle could not be infected with tubercle bacilli of human origin, and Ravenel has disproved this; Koch may be technically wrong, but not wholly wrong. Dr. Cobb holds that for clinical purposes and for means of prevention these accidental and possible diversions of the bovine bacillus to man or the human bacillus to bovines cannot receive serious consideration; that they are not the common method by which man is infected. Dr. Cobb holds that the wide extent of tuberculosis throughout the world is totally beyond the comparatively limited use of milk as a food. The statement was also made that the cattle of the islands of Jersey and Guernsey are free of tuberculosis, but that the inhabitants have about as much of the disease as elsewhere under similar environment.

Tuberculosis is a great scourge in China, according to reports from all portions of the empire. Authoritative statements from Japan were made that cows' milk is a factor of no account in the etiology of tuberculosis in that country, for the reason that it is little used and usually not to be had except as prescribed by physicians in cases of illness. The mortality from consumption for Japan in 1901 was 81,669 in a population of 45,000,000.

DR. A. JACOBI (New York): We have been told that cases of tuberculosis are very numerous and very fatal in countries where no milk is being used. Nobody doubts that. We also know and always have known that the principal mortality in our own country, where much milk is used, is not attributed to the use of milk at all, but to other causes. The question is simply whether tuberculosis can be the result of improper milk, that is, milk that contains tubercle bacilli,— whether there are cases which, in all probability or with certainty, are attributable to the use of raw milk. That is the question,— not that millions die of tuberculosis who have never used milk. What we have to do is, if we can, to answer the question as to whether milk is a factor in the spread of tuberculosis. One hundred negative cases or assertions do not prove anything against a single positive one, and there are such positive ones. The literature is too rich to be overlooked, and I would simply refer to that. There are, though there may be ever so many official denials of the fact, authenticated cases of general tuberculosis attributable to milk, or where tubercle bacilli have been found in the milk and where children were affected by it. In adults we seldom have an opportunity to attribute tuberculosis to milk. They eat a great many other things. Infants or children are more or less restricted to milk, and amongst these are the cases. If, for in-

stance, we have a case such as that of Ollivier's, where in a boarding school a number of girls were fed on milk that was found to be tubercular, and a large number of these girls died in consequence; when you have other cases in which a single cow was singled out for the special purpose of feeding the farmer's baby, and where that child was the only one that died of tuberculosis, and the cow died after the child of tuberculosis — such cases, by no means exceptional, although they are only isolated cases, prove more for the possibility of tuberculosis being spread by tubercular milk than any number of negative cases. I do not say that cases are very numerous, but they are numerous enough to induce us not to let up on watching milk for the presence or absence of tubercle bacilli, and, in case of doubt, boiling or sterilizing. That is a reason, also, why for a long time we have come to the practice of rather mixing the milk that comes from a farm — mixing the milk of a herd of thirty or forty; because it has been found by feeding that when the milk of one tubercular cow was mixed with the milk of so many cows not tubercular, the milk was so diluted, as far as the percentage of bacilli was concerned, that practically it proved uninjurious.

All these are facts that should not be lost sight of. It is quite true that there are a thousand more cases of tuberculosis that have nothing to do with milk; but there are quite a number of them that have.

(To be continued.)

SUFFOLK DISTRICT MEDICAL SOCIETY.
SECTION FOR SURGERY.

A MEETING of this section was held on Feb. 3, DR. F. B. HARRINGTON in the chair.

The evening was devoted to a discussion of the

TECHNIQUE OF GASTRO-ENTEROSTOMY.[1]

DISCUSSION.

DR. F. T. MURPHY spoke briefly of the McGraw elastic ligature, and showed specimens of gastro-enterostomies done on animals which demonstrated the various stages in the process of the cut-out by pressure necrosis. The speaker stated that he had obtained the most satisfactory results in animal experiments by using a pure rubber cord of 3 mm. in diameter at the middle of which a square knot had been tied. With this knot it was necessary to have a needle at either end of the ligature. This procedure brought a knot at either end of the anastomosis, and apparently decreased very considerably the time necessary for the cut-out, bringing it, in the resistant stomach of the cat, to about five days. Regarding the technique of the operation, he recommended the simple, single loop as described by McGraw rather than the elaborate modifications which have been suggested.

DR. J. G. MUMFORD: In July, 1902, Finney of Baltimore published a description of what has come to be known as Finney's pyloroplasty. It is so ingenious and effective a method of opening the pylorus and establishing efficient drainage that I wish to call attention to its advantages.

It was developed out of Jaboulay's operation of gastroduodenostomy which Finney found unsatisfactory. It might be described as a combination of gastroduodenostomy and the pyloroplasty of Heineke and Mikulicz. It consists practically in establishing a large opening between the duodenum and stomach and then joining the duodenal and gastric openings by a cut carried through the pylorus. Finney's description of the operation is elaborate and somewhat difficult to follow, especially as regards his method of placing the stitches. In practice I have found that the procedure may be made variously at the convenience of the individual operator.

The advantages and limitations of this operation are as follows: Its value lies in that it establishes a large and efficient drainage through normal channels, and in the case of a dilated stomach the anastomosis may be carried down nearly to the fundus of that viscus; it is not applicable in cases of malignant stricture, but in the case of non-malignant stricture and especially when the pyloric stenosis is not complete. In many cases of incomplete pyloric closure when a gastro-enterostomy is made we know that in the course of time the pyloric obstruction lessens; the gastric anastomosis closes more or less completely and the original symptoms may return. After Finney's operation, however, there is no record of failure of drainage. I quote the following brief paragraph from a recent address of W. J. Mayo:

"The gastroduodenostomy of Finney is a far better operation [than the Heineke-Mikulicz]. It gives a very large opening, and as the enlargement is downward in the line of gravity drainage, the results are much better than in the unmodified pyloroplasty. We have made this operation 34 times with but one death, and our results have been most excellent. In open ulcer it is probable that the operation will often fail to cure, as obstruction has no part in its causation as is shown by the existence of ulcers in the duodenum beyond the pylorus. It can be readily seen, therefore, that no matter how large the opening is made, the food and irritating gastric secretion must pass over the ulcer area to reach the intestine. The conditions calling for the Finney operation are late cicatricial stenosis and contractures."

A word in regard to one such case on which I recently operated. The patient had symptoms of obstruction for some two and a half months, with almost complete inability to retain food. She had been fed by nutrient enemata. The stomach was not greatly dilated. On opening the abdomen it was found that the pylorus was only slightly contracted by an old cicatrix; but the duodenum was tied down so closely against the stomach that a sharp kink resulted at the pyloric opening, causing almost total obstruction. A freeing of the adhesions and a pyloroplasty by Finney's method established perfect drainage. The patient promptly recovered; is eating solid food, and now, six weeks after the operation, is entirely well and free from gastric symptoms. This case is an admirable example of the type suitable for Finney's operation.

From the foregoing it would appear reasonable to make a comparison between Finney's operation and what is called Peterson's operation of gastro-enterostomy. Finney's operation is practically a gastro-duodenostomy carried low down in the stomach. Peterson's operation is a high gastro-jejunostomy. In Finney's operation the circulus-vitiosus is impossible because there is no circle; in Peterson's operation the circle is a very short one, as the distance from the pylorus to the anastomosis is made about 3 inches from the plica duodenalis, and by his method the vicious circle is almost unknown. Trendel of Tübingen reported last year 269 cases of this operation which is done by the posterior method, the cases being in the service of Czerny, Steinthal and himself. Of these 269 cases, 49, or about 18%, died within four weeks. In no case was there any vicious circle; so that it seems fair to assume that between this method and Finney's we have a choice covering nearly all possible con-

[1] See p. 323 of the JOURNAL.

tingencies and offering the advantage of avoiding the fatal vomiting which is seen occasionally in gastro-duodenostomy with the long loop, with or without entero-anastomosis.

DR. F. B. LUND: The subject which we have under discussion this evening is of such extreme interest that it is very hard to confine one's remarks within due limits. Each of the papers which has been read to-night has brought out certain points of value.

In regard to Dr. Porter's paper on the "Preparation of Patients for Stomach Operations," I would say that I should condemn, as he does, the washing out of the stomach on the table, with the patient under ether, as dangerous, on account of the possibility of causing inhalation pneumonia. Patients with obstructed pylorus, who have been starved for long periods, it is less important to wash at all, as there is practically nothing in the stomach to wash out. Feeding with sterilized foods before operation on the stomach strikes me as an unnecessary precaution, if we operate, as we do, with the stomach empty. We certainly cannot sterilize the stomach contents, and by modern methods we are able so completely to prevent soiling, that this matter seems of little importance.

In regard to Dr. Jones's paper on the exploratory operation, I have only one suggestion to make, and that is, that the epigastric incision be made a little to the left of the median line, thereby avoiding the broad ligament of the liver, that the fat contained between these layers, into which, if we operate exactly in the median line, we may cut vertically for some distance, thus being somewhat delayed about entering the peritoneal cavity, and having at the end of the operation, a more complicated wound to sew up. By cutting slightly to the left, we enter the peritoneal cavity more directly, and can sew up more quickly. As has been stated, every second of time is to be saved in doing this operation.

In regard to the so-called circular vomiting, I would say that, in my belief, its occurrence does not depend upon the presence of malignant or non-malignant disease. It is due, usually, to some obstruction of the descending loop, either by obstruction from a band, as the edge of the transverse mesocolon in a posterior operation, or adhesions from an omental tag, or to local paralysis of the loop from infiltration of its walls, due to the traumatism of too much handling. It may be avoided by paying such attention to technique as to avoid these contingencies.

In the posterior gastro-enterostomy, an ample opening may be made in the transverse mesocolon, and it should be stitched to the stomach in such a way that it cannot close on the anastomosis. Where there are numerous adhesions about the posterior surface of the stomach, and the transverse mesocolon is greatly thickened, the posterior operation should not be performed, but one of the anterior methods, or a Finney's operation, should be substituted. The writer lost one benign case by doing a posterior operation in the presence of extensive adhesions about the posterior surface of the stomach and thickening of the transverse mesocolon. Whatever operation is performed should be performed as quickly as possible and with as little handling as possible of the stomach and intestinal loops.

Moynihan's use of the clamps in a posterior gastro-enterostomy enables that operation to be done very quickly and neatly, with the minimum handling, and, it seems, is a distinct advance.

An important point in the technique of Moynihan's operation is the removal of clamps after the completion of the inner layer of sutures. This allows inspection of the line of anastomosis, and the securing of any bleeding vessel which may have been skipped by the inner layer of sutures, which, however, are placed so close together that the latter accident is a rare one. Another advantage of removing the clamps at this time is that the anterior peritoneal layer of sutures infolds the peritoneum with less tension and strain, and enables the surgeon to infold exactly what is necessary for the safety of his inner line of sutures, and nothing more.

Circular vomiting is much less frequent than it was a few years ago, and it has been shown in the anterior operation it was due not infrequently to the high position of the opening in the stomach, preventing drainage. This danger was thoroughly emphasized by Mayo, who showed that it could be avoided by making the opening of the anterior operation in the dependent portion of the stomach, and this procedure since it has been adopted has gradually reduced the frequency of this complication. The writer believes that now that we more thoroughly understand the reasons for its causation, this complication may be avoided in almost every instance.

Gastroduodenostomy, after the method of Finney, absolutely does away with the possibility of this complication, as there is no circle or loop to cause it, but there are many cases in which the operation of Finney cannot safely be performed, as in cases of great thickening of the pylorus, or adhesions of the pylorus to the liver or abdominal wall, which cannot be separated without danger of perforation or hemorrhage. Under these circumstances we are compelled to perform gastro-enterostomy, and the writer believes that, with proper attention to technique, gastro-enterostomy can be performed in almost every instance in such a way as to avoid the vicious circle.

In regard to choice between the anterior and posterior operations, it seems to the writer that the posterior operation is distinctly preferable, as enabling the stomach to drain downward by gravity from its lower posterior portion, and as avoiding the bringing up of a loop in front of the transverse colon, which is a *sine qua non* of the anterior operation.

The operation as described by Moynihan, in the author's hands, has proved so satisfactory that he has preferred it to the use of the McGraw ligature. The latter method is very attractive, and minimizes the time employed and the danger of soiling, but it has the disadvantage that the patient cannot be fed until the ligature has begun to cut through, a disadvantage in the case of patients weakened by starvation and hemorrhage, which seems to the writer to more than counterbalance the slightly less time in which the operation can be performed. The ligature simply takes the place of the inner row of sutures of Moynihan's method, and in the latter method the use of the clamps renders the danger of soiling very slight indeed. In skilled hands, the operation by the latter method does not require more than thirty to forty minutes.

In regard to the convalescence from these cases, it has seemed to the writer, in reviewing his own cases and those of his colleagues at the City Hospital, that in cases where gastro-enterostomy has been done for a complete obstruction of the pylorus, the convalescence has been smoother, and the good results more lasting than in certain of the cases where operation has been performed for the cure of chronic ulcer with obstruction of the pylorus by spasm. During the first few weeks after an operation in a case of the latter type, the pylorus relaxes on account of drainage provided by the new opening, but, having relaxed, the pylorus allows the food to escape through it and the gastro-enterostomy opening gradually closes. Then the old conditions recur. Pyloric spasm again takes place, and the patient begins to vomit. We have then two openings, both of which are insufficient to properly

drain the stomach, and further operation has to be performed.

Mayo and Rodman have suggested that the operation of the future in these cases may be resection of the pylorus, thus excising what he calls the ulcer-bearing area of the stomach, and by absolute closure of the pylorus, the permanency and patency of the new opening made by the surgeon. Closure of the pylorus by a purse string or silver wire passed about it has also been suggested in this class of cases.

The operation of Finney seems to be especially suited to this class of cases in which we find ulcer is at a distance from the pylorus, and the wide opening made by Finney's gastroduodenostomy will remain sufficiently large to prevent recontraction and recurrence of the symptoms.

We must wait for further experience to aid us in determining absolutely what is the best operation in cases of this type.

In regard to the after-treatment, as stated by Dr. Pease, we can with advantage begin to feed the patients earlier than we have done in former years. In favorable cases we can begin to give them diluted milk within twenty-four hours after the operation and semi-solids on the second or third day, and on the fourth or fifth day can give them finely divided, minced meat. Convalescence is aided and the danger of vomiting lessened, and the strength of the patient much more rapidly built up by beginning to feed these cases early. If a large enough opening has been provided, the food passes out of the stomach without bringing undue strain upon the anastomosis, and, in fact, the giving way of sutures and separation of the anastomosis is to-day one of the rarest of accidents. The convalescence of these patients when early feeding is begun is one of the most satisfactory phenomena which the surgeon is privileged to see. These patients may be out of bed often in ten days from the day of the operation and be able to leave the hospital in two weeks, and even patients who have been considerably exhausted by starvation are able to begin to do light work within a month after a gastro-enterostomy. The semi-recumbent position aids greatly in the drainage of the stomach, and these patients, many of them, should be propped up on pillows when they are first put to bed after the operation and given a bed rest in the first three or four days.

Recent Literature.

The Elements of Water Bacteriology with Special Reference to Sanitary Water Analysis. By Samuel Cate Prescott, Assistant Professor of Industrial Biology, and Charles Edward Amory Winslow, Instructor in Sanitary Bacteriology in the Massachusetts Institute of Technology. New York: John Wiley & Sons. 1904.

This work, emanating as it does from the biological laboratories of the Massachusetts Institute of Technology, carries with it the stamp of authority. American sanitarians have contributed so much to water bacteriology that it was most desirable to gather together, as the writers of this volume have done, the results of investigations made in this country, and to describe the methods used here. Although intended to serve as a textbook and laboratory guide, a working knowledge of general bacteriology is presupposed. The book is well written, up-to-date, and contains a good bibliography.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, SEPTEMBER 22, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

Subscription Terms: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 and 29 Bromfield Street, Boston, Mass.

FOURTH OF JULY TETANUS.

For two years the *Journal of the American Medical Association* has rendered a service in compiling statistics of Fourth of July accidents with special reference to the occurrence of tetanus. Last year the outcome of this investigation showed that at least four hundred and fifteen deaths had resulted from such injuries. In the first place it is of interest to note that the number this year is relatively so small, being but one hundred and five, that it is a matter of difficulty to determine whether last year showed an unusually large number of cases or this year an unusually small number. The figures have been obtained in precisely the same way as last year, making comparison fair.

After a careful consideration of all the facts, the editor is inclined to the opinion that the high mortality last year was not greatly in excess of the average, and that this year there has been a distinct reduction. For example, cities in which in previous years several cases of tetanus have occurred have this year had none. Chicago this year had but five deaths originating in wounds from blank cartridges, which, with one exception, is the lowest record which that city has ever had. Similar reports have come in from all parts of the country. The cause of this somewhat unexpected improvement is naturally of great interest. It has been suggested that in certain years the tetanus bacilli are less numerous, but this is not the case this year, inasmuch as tetanus from wounds other than those occurring on the Fourth of July has been rather more frequent than usual. Furthermore, the decrease in the disease has been general throughout the country and not local. The conclusion is, therefore, reached that the improvement is presumably due to the two factors of an actual decrease in the number of wounds

and to better care of the wounds when received. No doubt, public sentiment has been aroused within the last few years as never before, and the press has done much to warn parents of dangers to their children. No doubt, also, the actual publication of the mortality last year has done much to influence legislation toward the prevention of the sale of dangerous implements. In this state, for example, an attempt was made in the spring to pass a bill looking toward a less noisy celebration of the Fourth of July. The bill was defeated, but the impulse which excited its presentation and the general public feeling on the matter combined here, as elsewhere throughout the country, to modify the sale of explosives. Last year in Massachusetts sixteen deaths resulted from tetanus, and this year but five.

So far as one may judge from the somewhat scanty facts at our disposal, it seems altogether probable, as our contemporary suggests, that the education of the public, and through the public the passage of certain restrictive measures, has been the first factor in the diminution of the death-rate from this avoidable cause. In the second place the reports received indicate that wounds made by blank cartridges were more thoroughly cared for surgically, and that more doses of antitoxin were given this year than during all the previous years put together. On this point the writer affirms that not a single patient so treated developed the disease. In St. Louis, thirty-six cases of gunshot wounds were treated in the dispensary with no death from tetanus, a far better showing than last year. These cases had been injected with antitetanic serum.

This unexpectedly good showing should be most encouraging to those who see the possibility of influencing the public in medical matters. If tetanus may be reduced to such an extraordinary degree by the recognition on the part of the public of the correctness of the medical profession's views, it becomes evident that diseases of other sorts may likewise be gradually exterminated through similar campaigns of education. That this is becoming more and more the case is evident, and we have long been convinced that the wise education of the public is one of the main prophylactic measures upon which we must depend in the future for the gradual extermination of various forms of bacterial disease. The service which the *Journal of the American Medical Association* renders through its laborious statistical inquiry regarding tetanus is an example of missionary work which may well be followed by others. The facts which such an analysis contains are far more eloquent and persuasive than any amount of theoretical considerations regarding the danger of the disease.

THE OPENING OF THE MEDICAL SCHOOLS.

WITHIN a week the medical schools will have entered upon another session, and a large body of young men, with small realization of what they are undertaking, will have begun their professional work. To the student, the entrance upon a medical course offers many and perplexing problems, quite unknown to our forefathers and even to ourselves. He must, in the very nature of the case, be called upon early in his professional career to make decisions which are of vital importance to him and to the community which he is to serve. However much his instructors may do toward rendering this task easy, the ultimate responsibility cannot be shirked.

A corresponding responsibility, and perhaps even a greater one, certainly rests with the medical faculties. The ever-growing puzzle between what shall be prescribed and what shall be elective is offering difficulties in medical education which experience, however tempered with good judgment, must alone finally decide. It is easy to see the pitfalls into which our educational institutions are likely to fall in their combined endeavor to do the best for the student and to add laurels to their own reputations. Teaching on the one hand and personal investigation on the other render difficult a just balance. Our schools must now as always have teachers whose aptitude and interest in their subjects is such that they can lead the student with interest and enthusiasm in his work. On the other hand, we must also have men whose instincts lead toward original investigation, and whose dealings with students are therefore rather a matter of necessity than of choice. This problem of the investigator and the teacher is one which is becoming increasingly difficult of solution.

In the second place, the friendly rivalry between the laboratory and the clinic is becoming somewhat increasingly difficult of adjustment in view of the very great interest and importance attaching to the ramifying branches of laboratory study and the unpopularity of the lecture as a means of teaching. No doubt, time will adjust what differences of opinion may now exist. In the meanwhile, however, the medical student becomes the subject of experimentation.

A further problem, which, as we have recently

indicated editorially, we are inclined to think of significance, is the relatively small number of students entering our best medical schools. Statistics show that the number in general this year is decidedly less than last in spite of increasing preparations for their reception. It is apparent that many lines of strictly medical work, as, for example, illustrated by the Rockefeller Institute for Medical Research, may be and will be undertaken by men who have received no medical degree and have not had a medical education in the ordinary sense of that term. That such positions are increasing in number and that more and more opportunities will be offered for young men to enter upon what may prove their life work immediately is a fact of which our medical educators should take cognizance.

These are some of the matters which suggest themselves at this opening of an academic year, a year which will, no doubt, mark a further progress in medical teaching and will do its share toward adjusting the somewhat chaotic conditions which now exist. From the student's point of view the uncertainty of the future should add zest to his work and should likewise be a source of renewed effort to his much-tried teachers.

TREATMENT OF THE WOUNDED IN THE RUSSO-JAPANESE WAR.

From many standpoints the war now going on in the East is destined to afford information of great value, both in its military and medical aspects. Meager as authentic reports have been, certain facts regarding the treatment of the wounded and the character of the wounds received have been published in various periodicals. In the first place it appears that the Japanese Red Cross Society, in its discipline, equipment and efficiency, stands as a model for such organizations everywhere. Mr. George Kennan, writing on this subject recently in the *Outlook*, points to the fact that a Red Cross organization existed in Japan some six years before it was recognized in other countries, and that through its later affiliation with the army and navy departments it has attained a degree of practical efficiency which is far superior to the conditions in America where the relation existing between the society and the army is far less intimate. This organization no doubt had done much toward mitigating the inevitable horrors of the war in that the treatment of the wounded has been skilful and promptly performed.

Furthermore, as was demonstrated in the recent Boer War, the character of the rifle bullet now used is such that wounds are far more likely to heal than under conditions fifteen or twenty years ago. This fact, with the advent of modern surgical treatment, has led to a vast diminution in the number of deaths from wounds which not many years ago would certainly have been regarded as fatal. The rifle used by the Japanese throws the smallest bullet of any existing military rifles, but was favorably reported upon some years since by Dr. Kikuchi, staff surgeon of the Japanese army, on the ground that it would have great stopping power and that its wounds would heal quickly. This opinion he regards as confirmed by the experience thus far in the war. Patients shot through lungs, stomach, and even through the head, are said to have recovered. The stopping power is attributed to the cutting of blood vessels, leading to a loss of blood with accompanying weakness. The *British Medical Journal*, commenting on a letter of Mr. J. Gordon Smith, a war correspondent, states certain interesting facts regarding immediate treatment of the wounded. The plan has been not to operate on the field, but rather to dress wounds antiseptically and return the soldiers to hospitals as soon as possible. It is stated that up to the beginning of July over a thousand sick and wounded had been received at two hospitals in Tokio of whom not one died. Beyond the immediate treatment of aneurisms, the experience of the war seems to have taught that the knife is rarely necessary at the front. It is possible that the ration issued to the Japanese soldier has something to do with his immunity from suppuration. Naturally, physical condition must account for much in a prompt recovery from wounds. The foregoing may be true of small calibre bullet wounds, but it is difficult to see how the service of immediate surgery can be dispensed with in the case of wounds made by shrapnel and shells of various sorts so extensively used in this war. On this we have no information.

Some of the lessons thus far taught seem to be that the hospital organization should be in the closest possible relationship to the military service, that bullet wounds may best be left to nature, and that surgical operations of a radical sort are best performed, except in cases of extreme emergency, at base hospitals.

MEDICAL NOTES.

Delegates of International Dermatological Congress. — It is announced that Dr. Stelwagon of Philadelphia, Dr. Fordyce of New

York and Dr. Gilchrist of Baltimore are to be American delegates to the forthcoming International Dermatological Congress in Berlin.

A CENTENARIAN. — The death of James McWilliams, at the reputed age of one hundred and seven years, a veteran of several wars, occurred at Grenville, Ala., recently.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Sept. 21, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 44, scarlatina 7, typhoid fever 34, measles 6, smallpox 0.

TYPHOID FEVER. — Typhoid fever has for some time past been reported as prevalent in Newton, Mass. The source of its outbreak in this generally salubrious place has not as yet been announced. Typhoid has also appeared at the Navy Yard at Portsmouth, N. H., with between twenty and thirty cases up to the present time.

POSSIBLE BEQUESTS. — By the will of the late Dr. Henry Tuck, who was possessed of large wealth, one fourth of his entire estate is left to the Massachusetts General Hospital, one fourth to Harvard University and most of the rest in one-twelfth part shares to various institutions and societies in Boston and New York. As these bequests, however, are made with the proviso that his widow survives his children and all of their descendants, it would seem extremely doubtful whether they will ever be carried out.

A UNIQUE HONOR TO A PHYSICIAN. — If reports are to be trusted, Dr. W. L. Smith of Worcester, also intimately associated with medicine in Boston, has been appointed Physician in Ordinary to the Shah of Persia. The report goes that Dr. Smith, during his recent travels, was detained at Ispahan during an outbreak of plague. During this detention he prescribed for the natives with success. The Shah, ill with malaria, hearing of Dr. Smith's success, sent for him. As a result of his successful ministrations he has received the honorary title above referred to.

NEW YORK.

A RECORD FOR WEIGHT. — The record for weight among the patients of Bellevue Hospital is borne by Michael Glynn, who was recently an inmate of Bellevue, and later transferred to the City Hospital on Blackwell's Island. Although only twenty-four years old and considerably under six feet in height, he weighs 410 lbs. As may be imagined, the handling of so large a patient was attended with no little difficulty, and the heaviest bed that was available having collapsed under him, he was afterwards accommodated with one strongly reinforced with iron bars.

HEBREW CONVALESCENT HOME ASSOCIATION. — Initial steps have been taken for the organization of the Hebrew Convalescent Home Association, which proposes to buy a tract of land in Westchester County and build a home for convalescents just leaving the city hospitals.

DIPHTHERIA AT NEWARK, N. J. — During the last month, diphtheria has become increasingly prevalent in Newark, N. J., and now that the public schools have re-opened it is feared that there may be a further spread of the disease. The Board of Health is acting energetically in the matter and has adopted the practice of ordering preventive antitoxin inoculations in the members of families of persons attacked.

INSPECTOR OF CONTAGIOUS DISEASES. — A new office has been created by the New York Board of Health, namely, Chief Inspector of Contagious Diseases in the Borough of the Bronx, and Dr. Charles F. Spencer of that borough has been appointed to the position. Commissioner Darlington states that on account of the rapid increase of population above the Harlem the work there has become so enlarged that the present sanitary inspector is unable to keep up with it. The office of the new chief inspector will be at the Bronx headquarters of the Health Department, Franklin Avenue and East 168th Street.

MEASLES, CAUSE OF A RIOT. — A riot of curious origin recently occurred among a large band of gypsies who arrived on the steamship "Carpathia" and were being detained by the Government at Ellis Island for deportation. When they arrived, it was found that some forty of the children among them were suffering from measles. These were removed to the Kingston Avenue Hospital for contagious diseases, Brooklyn, and in some way the absurd report was spread among their parents that the children were being drowned by the city authorities. The trouble came to a head on Sept. 4, when a physician attempted to examine a child who had developed measles after the others had been sent away. Physical violence resulted, and the gypsies were only pacified after the mother of the child, who was allowed to accompany it to the Kingston Avenue Hospital, came back and reported that the patients were being well taken care of.

Miscellany.

THE POTASSIUM-PERMANGANATE-OXALIC ACID FETISH.

Dr. Charles Harrington in a paper, "Some Studies in Asepsis," read before the American Surgical Association, at St. Louis, June 14, 1904, made the following statement:

The preparation of the hands for surgical work is a subject that has interested me greatly. The potassium-permanganate-oxalic acid portion of the process has always excited my wonder. Three explanations have been given me of the necessity or advisability of this treatment, namely: (1) That the permanganate destroys bacteria; (2) That it oxidizes the organic matters adherent to the skin; (3) That when one stains the hands in every part with permanganate and then removes the stain with oxalic acid, the hands are clean. As to the assertion that it destroys bacteria: I have experimented with saturated permanganate solution against *Staphylococcus aureus* and *albus*, *B. coli* and *B. pyocyaneus*, and have found that ten minutes' exposure is ineffective against all but the last mentioned. These results, which were obtained not once, but several times, are shown in the following table in which the plus sign indicates growth, and the minus sign sterility:

TIME (MINUTES)	AUREUS	ALBUS	COLON	PYOCYANEUS
1	+	+	+	+
1½	+	+	+	+
2	+	+	+	+
2½	+	+	+	+
3	+	+	+	+
4	+	+	+	+
5	+	+	+	+
10	+	+	+	—
15	—	—	—	—

As to the oxidation of organic matter: Potassium permanganate is pre-eminently an oxidizer of organic matter. On dipping the hands into a saturated solution, they are stained a deep brown, owing to the precipitation of a lower oxide, oxygen having been given up to the epidermal scales and other organic matter. This deposit of the lower oxide is soluble in oxalic acid, which thus restores the normal color of the hands. It is assumed that the organic matter (just what harm it will do, unless it is in the form of bacteria, I do not know) is completely oxidized and disposed of. Dip the hands, however, a second time, and see what happens. The same thing. Repeat it. Again it happens; and again, and again, and again. This is due to the fact that, immediately on contact with organic matter, the permanganate is reduced and the hands become, as it were, *plated* with the precipitated lower oxide, which acts as a bar to further action of the permanganate upon the parts immediately beneath the plating, just as the albuminate of mercury prevents the further action of corrosive sublimate. A short time ago I tried the experiment of treating my hands first with permanganate and then with oxalic acid and repeating the process until further treatment failed to give the characteristic brown stain. On the twenty-first trial, the stain was observed to be less intense, and so on to the twenty-fifth, when the experiment was discontinued. From this it would appear that to oxidize all the organic matter possible by this means is an endless task. After twenty-five treatments I washed my hands with soap and water, and after repeated rinsing in running water, I dipped them again into the permanganate solution. At once the original dark brown stain appeared as intensely as ever; I was then oxidizing the traces of soap, which, in spite of continued rinsing, adhered tenaciously to the skin, as is proved by the great difficulty one observes in removing, by rinsing, the odor of a scented soap after washing therewith.

As to the statement that a hand once stained and decolorized is necessarily clean, there is but little to say. A dirty hand may be stained and decolorized as well as a clean one, but the dirt remains. Permanganate removes no dirt and destroys only weakly resistant bacteria.

THE COMPARATIVE INTELLECTUAL POWERS OF THE TWO SEXES.

A comparison between the mental attributes of the two sexes has practical as well as scientific interests, for from the economic standpoint it is obvious that the world's intellectual work must eventually fall into the hands of those persons, be their sex what it may, who by reason of their mental capacities are best fitted for this purpose. The comparisons drawn by Dr. J. de Körösy, the director of municipal statistics at Budapest, and embodied in a paper read before the meeting of the British Association at Cambridge, are certainly deserving of attention if only for the extensiveness of the observations on which they are founded. As director of municipal statistics, he has had opportunities of comparing the examination records of nearly 1,000,000 children, girls and boys, who have received their education both in elementary and in higher grade schools. As gauged by successes and failures the comparison is greatly in favor of the girls, and even as regards proficiency in arithmetic, a subject usually regarded as the special prerogative of boys, the balance of proficiency inclines obviously to the side of the girls. The intellectual superiority of girls, as revealed by the test method applied by Dr. Körösy, is so unexpected and so entirely opposed to the teaching of the world's history that we naturally turn to other possible sources of explanation apart from inherent intellectual superiority to reconcile the pre-existing conception with the statistical figures drawn from the Hungarian archives. — *Lancet.*

Correspondence.

A DISCLAIMER.

Boston, Sept. 19, 1904.

Mr. Editor: My attention has been recently called to a circular advertising a Sanitarium in Athol, Mass., for the treatment of diseases by electrical and magnetic methods, and bearing as one of its signatures the name, "C. J. Alexander, M.D., Physician and Surgeon."

The similarity of names having suggested the question of my own connection therewith, I desire, through the columns of your Journal, to emphatically disclaim any knowledge of, or connection, past or present, with the above-mentioned institution.

Truly yours,

Clara J. Alexander, M.D.

The Bristol, Copley Square.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 3, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Diarrheal Diseases.
New York . .	3,908,644	1,274	518	36.89	8.31	2.20	1.02	18.91
Chicago . . .	2,021,086	491	164	34.40	12.42	1.22	1.83	17.51
Philadelphia	1,407,968	371	131	32.67	5.67	.81	2.70	15.39
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,239	184	65	39.67	2.71	1.08	3.26	17.93
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	92	—	35.87	3.26	5.43	5.43	15.22
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	57	23	36.83	4.35	5.26	1.75	21.04
Boston . . .	617,950	199	77	31.15	3.52	1.51	2.01	18.59
Worcester . .	136,925	37	15	24.32	5.40	8.10	—	18.91
Fall River . .	119,349	28	14	50.00	10.71	—	—	32.13
Lowell . . .	104,402	27	11	29.62	—	—	3.70	18.51
Cambridge .	100,998	22	12	36.36	4.54	—	4.54	22.72
Lynn	73,875	26	6	23.07	3.85	—	—	11.53
Lawrence . .	72,348	17	9	41.17	11.76	5.88	—	29.41
Springfield .	72,020	22	7	22.72	—	—	—	13.63
Somerville .	70,413	13	2	15.40	7.70	—	—	7.70
New Bedford	68,863	29	17	51.72	6.90	3.44	—	41.37
Holyoke . . .	50,538	18	10	50.00	5.55	—	—	27.77
Brockton . .	46,601	17	4	11.76	—	—	—	—
Newton . . .	39,310	13	3	—	—	—	—	—
Haverhill . .	39,061	3	—	33.33	—	—	—	—
Malden . . .	37,205	5	3	80.00	—	—	20.00	60.00
Salem	37,188	11	7	27.27	—	—	—	27.27
Chelsea . . .	36,499	13	10	—	—	—	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	12	6	58.31	8.33	—	—	50.00
Everett . . .	30,209	2	—	—	—	—	—	—
North Adams	29,201	12	6	33.33	—	—	—	25.00
Quincy . . .	26,798	7	5	71.50	—	—	—	57.20
Gloucester .	26,121	—	—	—	—	—	—	—
Waltham . .	25,797	10	4	40.00	—	—	—	20.00
Brookline . .	23,576	1	—	—	—	—	—	—
Pittsfield . .	22,870	12	3	25.00	8.33	—	—	16.67
Medford . .	21,956	6	2	33.33	—	—	—	33.33
Chicopee . .	21,692	6	5	33.33	16.67	—	—	33.33
Northampton	20,314	—	—	—	—	—	—	—
Beverly . . .	15,807	4	—	25.00	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	3	0	33.33	—	—	—	—
Adams . . .	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	4	—	50.00	—	—	—	25.00
Hyde Park .	14,500	3	1	33.33	—	—	—	—
Newburyport	14,478	10	4	30.00	—	—	—	30.00
Woburn . . .	14,315	7	3	14.30	—	—	—	14.30
Melrose . . .	13,819	2	1	—	—	—	—	—
Westfield . .	13,809	2	—	50.00	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	1	0	100.00	—	—	—	—
Revere . . .	13,609	4	1	25.00	—	—	—	—
Framingham	12,974	3	0	—	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,324	3	1	33.33	—	—	—	—
Southbridge .	11,716	1	—	50.00	—	—	—	—
Watertown .	11,575	5	1	—	20.00	—	—	—
Weymouth . .	11,350	3	1	—	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,092; under five years of age, 1,152; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,083; acute lung diseases 184, consumption 360, scarlet fever 14, whooping cough 15, cerebrospinal meningitis 12, smallpox 1, erysipelas 2, puerperal fever 4, measles 4, typhoid fever 51, diarrheal diseases 567, diphtheria and croup 53.

From whooping cough, New York 5, Chicago 3, Philadelphia 2, Baltimore 1, Pittsburg 2, Boston 1, Lynn 1. From measles, New York 3, Pittsburg 1. From scarlet fever, New York 5, Chicago 3, Philadelphia 1, Baltimore 4, Pittsburg 1. From cerebrospinal meningitis, New York 10, Chicago 1, Worcester 1. From erysipelas, Philadelphia 2. From smallpox, North Adams 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Aug. 20, the death-rate was 22.7. Deaths reported 6,639; acute diseases of the respiratory organs (London) 40, whooping cough 79, diphtheria 39, measles 130, smallpox —, scarlet fever 26.

The death-rate ranged from 7.8 in Kings Norton to 39.1 in Liverpool; London 21.6, West Ham 28.0, Brighton 17.3, Plymouth 17.8, Bristol 16.0, Birmingham 24.4, Leicester 21.2, Nottingham 23.9, Bolton 16.9, Manchester 26.9, Salford 32.1, Bradford 17.0, Leeds 23.5, Hull 29.0, Sheffield 22.4, Cardiff 17.2, Rhondda 30.7, Merthyr Tydfil 21.0, Swansea 27.7, Wigan 34.0, South Shields 17.0.

METEOROLOGICAL RECORD.

For the week ending September 3, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 28	30.06	68	81	56	69	64	66	W	S W	8	11	C.	C.	0
M. 29	29.98	72	82	61	69	47	58	S W	N	11	12	O.	C.	0
T.. 30	30.20	60	64	55	58	78	68	N E	S E	7	8	C.	C.	0
W. 31	30.23	64	73	56	67	68	68	S W	S E	7	4	O.	C.	0
T.. 1	30.26	64	72	56	75	75	75	N E	S	4	11	O.	O.	0
F.. 2	30.12	70	79	62	78	82	80	S W	S	14	12	O.	C.	0
S.. 3	30.04	76	85	68	78	84	81	S W	S	9	10	C.	C.	0
☞	30.13		77	59			71							0

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING SEPTEMBER 17, 1904.

E. H. GREEN, medical inspector. Ordered to the Navy Yard, New York, N. Y. Oct. 1.

D. N. BERTOLETTE, medical inspector. Detached from duty as a member of the naval retiring board and of the naval and medical examining boards, Washington, D. C., and ordered to resume other duties.

A. F. PRICE, medical director. Detached from the navy yard, New York, N. Y., Oct. 1, and ordered to duty as a member of the naval retiring board, Washington, D. C.

F. W. BRECK, pharmacist. Ordered to the Naval Hospital, New York, N. Y.

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheatre of the Boston City Hospital on Sept. 23, from 10 A.M. until 12.30 P.M.; Renal Calculus; Nephrorrhaphy; Fecal Fistula; Inguinal Hernia; Abdominal; Tuberculous Glands of Neck; Abdominal Tumor.

RECENT DEATH.

JACOB CHAMBERS, M.D., a prominent physican of Kingston, N. Y., died on September 15, in the fifty-third year of his age. He was the family physician of Judge Parker, the Democratic candidate for President, who was one of the pall-bearers at his funeral services at St. John's Church, Kingston, on September 17.

BOOKS AND PAMPHLETS RECEIVED.

The Suppression of Tuberculosis together with Observations concerning Phthisiogenesis in Man and Animals and Suggestions concerning the Hygiene of Cow Stables and the Production of Milk for Infant Feeding, with special Reference to Tuberculosis. By Prof. E. von Behring. Authorized translation by Charles Bolduan, M.D. First Edition. New York: John Wiley & Sons. London: Chapman & Hall, Ltd. 1904.

Transactions of the American Association of Obstetricians and Gynecologists. Vol. xvi. For the Year 1903. New York: Rooney & Otten Ptg. Co. 1904.

Transactions of the Medical Society of the State of New York for the Year 1904.

A Theory of the Symptom-Reflex. By T. Horace Evans, M.D. Reprint.

Origin of the Vermiform Appendix. A Preliminary Report. By Alfred Moore, M.D. Reprint.

Studies from The Rockefeller Institute for Medical Research. Reprints. Vol. II. 1904.

Handbook of Surgical Anatomy. By G. A. Wright, B.A., M.B. (Oxon.), F.R.C.S., and C. H. Preston, M.D., B.S. (Lond.), F.R.C.S., L.D.S. (Eng.) Philadelphia: P. Blakiston's Son & Co. 1904.

The Physiological Feeding of Infants. A Practical Handbook of Infant Feeding, and Key to the "Physiological Nursery Chart." By Eric Pritchard, M.A., M.D. (Oxon.), M.R.C.P., (Lond.). Second Edition. Greatly Enlarged and Entirely Rewritten. Chicago: W. T. Keener & Co. 1904.

Original Articles.

DISEASE OF THE MYOCARDIUM.*

BY HENRY JACKSON, M.D., OF BOSTON.

MANY large volumes have been written on the subject of valvular disease of the heart, and much discussion has taken place as to the possibility of an accurate differential diagnosis and as to the exact pathologic condition which is the cause of a certain murmur. All textbooks contain many chapters on this branch of heart disease. On the other hand, diseases of the myocardium are dismissed with a short account of the rare forms of new growth which may be found in the muscular substance of the heart, and often by a rather confused account of dilatation and hypertrophy of the heart.

Practically, we cannot with our present knowledge successfully apply treatment to chronic valvular diseases, or rather we cannot, at any rate, cure the deformities of the valves produced by chronic valvular endocarditis. In heart disease, individuals suffer only when and in proportion as the myocardium becomes involved as the result of a failure of the valves to carry on their work. This is certainly true of the cases of disease dependent upon valvular trouble, but such cases represent only a small proportion of the individuals who suffer from disturbance of the heart.

A very large number of individuals who are affected with "heart disease" have no valvular lesion. The nomenclature of non-valvular diseases of the heart is at present chaotic, and an exact diagnosis is most difficult to make, in many cases, impossible. We are confronted by two possibilities in choosing the proper name for a given case; we may choose a name according to the most prominent clinical symptom as dilatation, or mitral regurgitation, or we may choose a name based on the probable pathologic condition. The former method is certainly faulty; as to the second suggestion we are rarely in a position to decide with accuracy as to the exact pathologic lesion present in a given case. In many cases we may be reasonably sure as to the ultimate cause of the trouble, as in cases of arterio-sclerosis, yet quite in the dark as to the exact pathologic condition of the heart. A glaring proof of the futility of attempting to define the disease on the basis of the pathologic condition is found, in the continued use of the term, "fatty heart," though we know that fatty degeneration of the heart is rarely found to be the cause of serious chronic myocardial disease. Until further light is thrown upon the subject the name, "myocardial disease," or disease of the myocardium seems open to as little objection as any other term. Myocarditis is objectionable as it signifies a condition seldom present; degeneration of the myocardium is far more common than any inflammatory process.

It seems wise to choose a generic name rather than a definite name based on pathologic findings as the changes found are manifold. Diseases of the myocardium may be classed as acute and chronic. In most septic diseases, using the word in the wide sense of including all diseases of acute course dependent upon bacteria, we find at autopsy more or less fatty or granular degeneration of the muscle of the heart. During life this process is suggested by rapid action or by irregularity and intermittent action. I have seen in diphtheria and scarlet fever weakness of the heart so marked that only a portion of the beats were transmitted to the pulse at the wrist, a condition that I have elsewhere described as the "acme of cardiac weakness." It is probable that in a large number of cases such a condition is absolutely curable, though the recent investigations of Thayer suggest that the more marked affections of the heart in typhoid may lead to subsequent disease appreciable by physical examination.

Aside from the irregularity of the heart and the increased rate, other phenomena may be noted. As a rule, dilatation of the heart cannot be or certainly is not diagnosed by percussion; but it is not unusual in the hospital, where careful measurements of the heart area are frequently made, to find in acute disease that the left border may extend some distance to the left of the nipple line. In children and young adults I have frequently seen such a dilatation come on rapidly, and as quickly subside with the improvement in the course of the disease. As the state of the patients in which I have found this condition has not always been serious, I am inclined to the opinion that dilatation might be found more often if its existence were sought for with care. In certain infectious diseases, especially in diphtheria, the affection of the heart is more common than in many others. Doubt has been raised whether the chief disturbing factor in producing incompetency of the heart in acute disease was to be sought for in the nerves or in the muscle of the heart. Until proof to the contrary is forthcoming, the fact that pathologic changes in the myocardium are common seems to weigh in favor of the assumption that the chief trouble is to be sought for in the degeneration of the muscular substance of the heart.

In the course of an acute disease the condition of the heart described above is not usually so marked as in itself to demand attention, aside from that given as routine practice in the care of the case, but in convalescence I have frequently seen irregularity of the heart persist after the main symptoms of the primary disease had entirely subsided. A slow action of the heart is frequently described as a symptom of heart weakness, especially in so-called "fatty heart"; this condition I consider rare, in fact very seldom seen; whereas in disease of the myocardium, as evidenced by weakness subsequent to acute infectious disease, a slow, irregular pulse, often intermittent, is a common occurrence. If the patient survive the acute disease, the immediate prognosis of the cardiac condition is certainly good, as sudden death is rare except in diphtheria.

* Read before The Massachusetts Medical Society, June 7, 1904.

From analogy it is more probable that sudden death in diphtheria is due to a disturbance of the nerves than to the pathologic condition of the myocardium.

Aside from acute degeneration of the myocardium already spoken of, other processes may be found. Abscesses in the course of general septicemia may be found. In gonorrhea I have seen acute purulent myocarditis ending in sudden death. Acute malignant myocarditis of the same nature as acute malignant endocarditis is not very rare; in an analysis that I made of 59 cases of malignant endocarditis, in three the process was myocardial, and I have recently seen other cases. In none of the cases was the diagnosis made definitely, and probably such a diagnosis could not be absolutely established during life, unless by exclusion. In all the cases the heart was rapid, weak, and the symptoms suggested some serious heart disturbance.

The acute forms of myocardial disease described do not, except in the case of acute abscess, present a picture suggestive of heart disease, but are simply physical conditions that may account for the varying grades of the severity of an illness dependent upon the primary disease which gives rise to the cardiac condition.

In chronic disease of the myocardium we find an entirely different process. A patient consults us for symptoms suggestive of heart disease, — shortness of breath, palpitation, precordial distress, cough, — and having determined that the essential lesions causative of the disturbance are situated in the heart, we have to decide whether the case under consideration is suffering from valvular disease or from disease of the myocardium.

In approaching the consideration of such a case, determine as accurately as possible the size of the heart by palpation and percussion; the latter method is to my mind more accurate than palpation, and in most cases gives accurate data as to the size of the heart. Frequent comparison of the post-mortem findings with the data determined by percussion gives me a good deal of confidence in drawing conclusions from percussion. This opinion is based largely on examination made by house pupils in the hospital, therefore I feel at liberty to make this statement as to the accuracy of percussion. The character of the pulse, the regularity of the beats, and the presence or absence of signs suggestive of chronic passive congestion, determine whether the enlargement be due mainly to dilatation or hypertrophy of the muscular substance. But we may with much certainty assert that where there is enlargement readily appreciable by percussion, a certain amount of dilatation is present. Frentzel makes the statement that in all cases where enlargement of the cardiac area is appreciable by percussion dilatation is present.

In the vast majority of cases the presence of an aortic murmur determines that the trouble is dependent upon degeneration of the aortic valves, and certainly the opposite conclusion can only be decided by post-mortem evidence. This is not the case with a murmur in the mitral area. In a large number of cases of myocardial disease there is a regurgitation through the mitral valve, not to be distinguished by its situation, quality or transmission from a murmur produced by endocarditis of the mitral valve. This murmur is certainly not even distantly related to the so-called "hemic murmur," but is caused by a leak in the mitral valve as shown by the characteristics of the murmur, by the results dependent upon the leak evidenced in chronic passive congestion of remote organs, and associated with great enlargement of the mitral orifice, often demonstrated post-mortem.

The diagnosis of myocardial disease rather than mitral cannot be made definitely in such a case, but is dependent upon the absence of diseases which usually lead to the production of a mitral endocarditis; further by the presence of signs usually causative of myocardial disease. As a rule, great enlargement of the heart area with marked evidence of dilatation is less common in mitral than in myocardial disease.

Post-mortem the heart is found to be enlarged; the weight may not infrequently reach 600 gm., the normal being perhaps 300 gm., and cases are often seen in which the heart weighs 800 or 900 gm. In the larger hearts the cavities are much dilated. Except in early stages the increase in the substance is dependent not upon increase in the muscle but upon fibrous growth into and surrounding the muscular substance. Microscopically the muscular cells are degenerated and are often widely separated by fibrous growth. Large areas are frequently seen in which the muscular substance has practically disappeared, and these are the cases in which local dilatation gives rise to the so-called aneurism of the heart.

Myocardial disease may arise from various pathologic processes:

First, from disturbances within the heart itself: sclerosis of the coronary arteries, in many cases the direct cause of myocardial disease in that as a result of narrowing of the vessels the nutrition of the heart muscles suffers, and a gradual fibrous degeneration takes place, causing indirectly weakness of the heart. Absolute closure of the coronary vessels in rare instances gives rise to softening of the muscular substance which may end in rupture, as in a case under my observation. In cases with sclerosis of the arteries of the heart precordial pain and distress seem to be more common than in other forms of myocardial disease.

Second, and by far the most common cause, is general arterio-sclerosis. The younger the individual attacked by sclerosis the greater the probability that the heart will be involved. Arterio-sclerosis is a very common disease, and the size of the heart varies so much in cases which present apparently a similar grade of degeneration in the vessels, that it certainly seems possible that some other element than simple mechanical obstruction enters into the etiology of enlargement of the heart — perhaps a toxemia which affects directly the heart and the superficial ves-

sels, making both conditions, therefore, the result of a common etiologic factor. In many cases of intense hardening of the vessels in old age, we find no evidence of any involvement of the heart.

Third, renal disease; especially in the type of chronic kidney disease in which the process consists essentially of a chronic interstitial nephritis. In these cases hypertrophy is the rule, and the heart itself does not usually become sufficiently dilated to become incompetent.

Fourth, many cases are seen in which no pathologic factor can be found, cases in which we have the history of excessively hard physical labor, but no sclerosis of the arteries is found and no renal disease.

Fifth, excessive abuse of alcohol in which no gross pathologic lesions are found. Many such cases come under our observation in a hospital clinic. They represent a type of "heart disease," and the heart may be of enormous size. Such cases certainly suggest the possibility that the large hearts found in certain cases of arteriosclerosis may be dependent upon a toxemia rather than upon a simple mechanical obstruction due to the narrowing of the superficial vessels.

Sixth, a few cases come under our observation in which we find an enormous heart without any known etiology, cases in which there is no history of hard work, no history of alcohol, and in which no pathologic factor can be found that represents in any way a probable explanation for the enlargement on the theory of mechanical obstruction.

In a few rare cases tumor of the myocardium gives rise to symptoms suggestive of "heart disease." So far as I can say, I have not seen this condition except occasionally in syphilitic myocarditis, a condition that I have diagnosed.

Enough has been said to show that "heart disease" does not always mean valvular disease of the heart. In fact, from statistics that I have gathered and published from clinical observations and from post-mortem records, valvular disease of the heart is found in only about half of the cases of "heart disease."

DISCUSSION.

Dr. J. H. Pratt of Boston: I have recently been studying the relation of diseases of the heart muscle to cardiac insufficiency, with special reference to the significance of fatty degeneration, and I am pleased to learn that my observations, so far as they go, accord with the conclusions of Dr. Jackson. I agree with him and with recent German investigators, notably Krehl, Romberg and Albrecht, that fatty degeneration of the myocardium has little if any clinical significance. As Dr. Jackson says, the textbooks pay too little attention to myocardial disease. Even in cases of chronic endocarditis the condition of the heart muscle is more important than the valvular lesion. The most frequent cause of broken compensation, according to Krehl, Kelle and Albrecht, is acute interstitial myocarditis. They found that when the entire heart was cut into small blocks, and sections studied from each block, that pathological alterations in the heart muscle were always present.

Interesting experimental work from Curschmann's clinic by Romberg, Pässler and Rolly indicates that in diphtheria the circulatory disturbances which occur early in the disease are due to injury of the vaso-motor apparatus by the diphtheria toxin, while the circulatory disturbances which occur during convalescence are, as Romberg pointed out some ten years ago, the result of an acute interstitial myocarditis.

Dr. H. H. Smith of Boston: The statement is frequently made that sudden death from heart failure is common in diphtheria. During my two years' connection with the South Department of the Boston City Hospital, I did not see an instance of sudden death from this cause, although there were several from respiratory obstruction. Several patients taken from the hospital by parents or friends before they were ready for discharge have subsequently died suddenly, death in each instance taking place during the third week of the illness.

ABSCESS OF THE LIVER FOLLOWING ABDOMINAL INFECTIONS, WITH A REPORT OF FOUR CASES.

BY DANIEL FISKE JONES, M.D., BOSTON,
Surgeon to Out-Patients, Massachusetts General Hospital.

Abscess of the liver, though a comparatively rare complication of abdominal infections, is, we believe, of more frequent occurrence than is generally supposed. Statistics show it to be a complication of appendicitis in from 1% (Caley) to 2% (Langheldt) of all such cases as come to autopsy. Fitz in 257 autopsies on cases of perforative appendicitis, found 11 cases of pylephlebitis. Langheldt in 112 autopsies found 4 cases of pylephlebitis, 2 of abscess of the liver, and 2 of suppurative hepatitis. Caley in 200 autopsies found 2 cases of abscess of the liver. Libman in 48 cases of appendicitis found suppurative lesions in the mesenteric and portal veins in 6 cases, in 4 of which there were multiple abscesses of the liver. The percentage of abscesses to the number of cases reported by Libman must be considered purely accidental. These statistics must be modified somewhat when applied to appendicitis at the present time, for patients are now operated upon much earlier than they formerly were and the appendix is practically always removed.

I have been able to find in literature 114 cases of abscess of the liver following abdominal infections. Of these the appendix was the focus of infection in 100 cases, salpingitis or pelvic cellulitis in 11 cases, and perforated gastric ulcer in 3 cases. I have taken only those cases in which it was definitely stated that there was abscess of the liver, and not pylephlebitis alone; and I have not included cases of abscess from simple ulcer of the stomach or intestines.

The most frequent situation for these abscesses is the right lobe, close to the posterior-superior surface. Of the 114 cases collected, the abscess or abscesses were in the right lobe in 50%; in both lobes in 44%; in the left lobe in 6%. The reason for this seems to be a purely anatomical one; the right lobe is larger, and the branch of the portal vein to this lobe continues in a straight line from the main trunk, while the left leaves it almost at a right angle.

The varieties of abscesses found are: (1) Multiple abscesses, usually situated in the periphery, and varying in size from that of a pin head to that of a walnut. (They are by far the most frequently met with and were given the name of "Absces areolaire" by Chauffard); (2) The single abscess (Loison, Koerte, Morton) which is usually situated close to the periphery but may be found in any part of the organ; (3) The large single abscess surrounded by a colony of small ones (Legg and Rolleston); (4) Two or more large abscesses, which may be situated in parts remote from each other (Monnier and Starr); (5) Several large abscesses, which may connect (Ashby, Roger, Payne); or (6) One large abscess with the remainder of the liver filled with small ones (De Gennes, Munro, Becker).

Though there may be many ways for the infection to reach the liver from the abdomen, the portal vein is undoubtedly the path followed in practically all cases. Of the 114 cases collected, the portal vein was found to be infected in 55. It was not stated whether the portal vein was infected or not in 38, while in only 21 was it stated that it was not infected; and there is nothing to prove that the branches of the portal were not infected in these cases.

I have been unable to find that the lymphatics of the abdominal cavity or retroperitoneal tissue have any close connection with the lymphatics of the liver. Infection of the retroperitoneal tissue takes place in a large proportion of appendiceal infections, and yet liver abscess rarely occurs. On the other hand a large proportion of cases of liver abscess occur in simple ulcerative or mild perforative appendicitis when the retroperitoneal tissue is not involved. If the retroperitoneal lymphatics do connect freely we should have the liver infected in perinephritic abscesses and spinal caries more often than is the case. That the peritoneal lymphatics, too, have no intimate connection seems probable when we consider the great number of abdominal infections, — the number of appendix abscesses in contact with the under surface of the liver, and the subphrenic abscesses.

Anatomically it would seem difficult to infect the liver from the abdomen through the lymphatics. Poirrier and Cuneo in their anatomy divide the lymphatics of the liver into two systems: (1) The superficial lymphatics, which begin in the interlobular tissue between the superficial lobules; (2) The deep lymphatics, which originate about the deeper lobules. The superficial come to the surface beneath the peritoneum and empty into the glands, (1) about the celiac axis, (2) about the thoracic portion of the inferior vena cava, (3) about the esophagus in the thoracic cavity, (4) in the hilus of the liver, and (5) the subxiphoid group.

The deep lymphatics follow the portal and subhepatic veins and terminate in the glands of the hilus and in the intra-thoracic glands about the vena cava. It will be seen that only one group of lymphatics terminates below the liver, — the one from the posterior surface which terminates in the celiac glands. Another point to be noted is that the lymphatic flow is from the interior of the liver outward and not from the abdominal cavity toward the interior of the liver.

The power of the liver to destroy infective material is well known, and if the bacteria do reach it through the lymphatics, they must come so slowly that the liver is able, in most cases, to destroy them.

That abscess of the liver does result from the contact of pus, cannot be denied; yet it is only after a considerable period, when the peritoneum and capsule have sloughed through, that infection takes place. Fashen's and Owen's cases were, undoubtedly, owing to contact of pus.

Although it is possible for infection to be carried from the abdomen to the liver by the systemic circulation, the occurrence is undoubtedly rare. The following concomitant infections have been found at autopsy: Ashby, endocarditis; McClelland, meningitis; Netter, infection of the lung; and Wallis, infection of the kidney. These infections may have been secondary to infection of the liver, and they do not necessarily show that they came or that the liver was infected through the systemic circulation.

Dieulafoy lays great stress upon the fact that the appendix is a closed cavity in which the virulence of the bacteria is increased to such an extent that the liver is unable to destroy them when they are brought to it.

A striking fact in looking over the reported cases of appendicitis is that a very large percentage of cases were either of the simple ulcerative or of the mild perforative form. It is undoubtedly owing to this fact that the primary abdominal symptoms were so many times entirely overlooked. Of the 100 cases of appendicitis, in but 4 was the appendix removed before the onset of liver symptoms; in many, appendicitis was not suspected until found at autopsy. In 14 of the 100 cases of appendicitis, a pin in the appendix was found to be the exciting cause.

Abscess of the liver is, as I have said, a much rarer complication of appendicitis to-day than formerly because the average length of time before operation is much shorter, and because the appendix is practically always removed. In case No. 1 the appendix was not removed, and not until fifteen days after drainage of the appendiceal abscess were there any symptoms of abscess of the liver. Dieulafoy thinks that abscess of the liver is one of the most serious complications of appendicitis and one of the strongest arguments for early recognition of the lesion and operation for the removal of the appendix. He believes that such a complication can be avoided by operating before the fifth or sixth day, as liver symptoms seldom if ever develop before that time. Unfortunately, it is the mild cases of appendicitis which often cause abscess of the liver; and they are, of course, the cases which are most often treated medically.

The diagnosis of abscess of the liver is comparatively easy if the patient is seen early, when there are tenderness and pain in the region of the

liver; or if seen late after the liver is enlarged. In the intermediate stage it is difficult and often impossible to make a diagnosis.

If the case is seen from the beginning there will be some symptoms of appendicitis, of salpingitis, or whatever the primary cause may be. Sometime during the course of these symptoms, or perhaps after their subsidence, there will be a sudden severe pain in the epigastrium or lower chest, with tenderness in this region, which in the great majority of cases is accompanied by a chill, usually severe. With this pain in the hypochondrium there is often increased rapidity of respiration with pain on deep inspiration. This may be true even though the abscess is deep and there is no peritonitis between the liver and diaphragm (as in Case 1). Marked tenderness on pressure over the liver is usually present. Chills may occur at intervals of several days, or they may recur once or twice daily. They are rarely, however, absent entirely. With the chills there are great variations in temperature. Vomiting is a somewhat constant symptom. This Berthelin calls the first stage.

In the second stage the pain and tenderness are much diminished or wanting entirely. Diarrhea is usually present at this stage; constipation is rare. Jaundice may be present, but is often absent. It may vary from the slightly yellow tinge of the sclerotics to a deep jaundice. The urine may contain bile.

The chills are followed by profuse sweating. Their frequency in this stage depends largely, it seems to me, upon the condition of the portal vein; that is, if there is a pylephlebitis with frequent fresh infections of the liver, the chills are frequent, while if there is infecton of the smaller mesenteric veins only, with a single or perhaps two or three abscesses, the chills are infrequent, and sometimes absent after the first one or two.

The temperature is very irregular, with great excursions, varying from normal or even subnormal to 104° or even 106°. There may be a day, or even several days, during which the temperature is little above normal. The pulse is rapid and weak. In this stage enlargement of the liver can usually be made out very easily. The patient is now in a typhoidal state, is extremely weak and thirsty, and has no appetite. The tongue is dry, and the patient rapidly grows weaker and more emaciated.

In the third or last stage all the foregoing symptoms are exaggerated; the patient sinks into a semi-conscious condition and dies. Delirium may or may not be present.

A physical sign of value, which at times is present when the abscess is caused by infection from the intestinal tract, is tympany over the abscess cavity, owing to the presence of gas producing bacteria. This was a localizing symptom in Case 1.

A procedure of doubtful value is aspiration. It is unsatisfactory because the abscesses are often so small that the tap is a dry one, or if the abscess is single it may be transfixed by the needle or missed altogether. I have seen a surgeon puncture the liver ten or twelve times, when the abdomen was open, without finding the abscess which autopsy later showed to be present. Aspiration is not only unsatisfactory, but it is dangerous; for even though no pus is obtained through the needle, an abscess cavity may have been opened which will discharge pus through the needle hole. This occurred in Case III. After I had opened the abdomen and had made several punctures without obtaining pus, I saw that pus was oozing out of the first two punctures. Wood says that 80% of punctures are fatal, — a statement very hard to prove.

Loison has found the x-ray of considerable diagnostic value in his cases.

After the diagnosis of abscess of the liver is made, shall operation be advised? Munro says we must have earlier diagnosis and earlier operation in these cases. Operation would undoubtedly give the best results in a certain small percentage of cases which may be considered operable. But this percentage is so very small that it would hardly seem wise to operate early on all cases. Is there not a class of cases which we can select to operate upon early? Berthelin says that only the single abscesses are operable, but that the diagnosis between single and multiple abscesses is impossible. Of the 114 cases collected, in but 35 was there a single abscess or a grouping of abscesses which might be considered operable.

The condition of the portal vein seems to me to be of much greater importance than the number of abscesses in the liver; for if there is a phlebitis of the main trunk of the portal, drainage of a single liver abscess can be of little value. I believe such cases are inoperable, in spite of the cases of Treves and Libman. Treves reported a case of pylephlebitis and multiple abscesses of the liver in which the patient recovered after a simple exploratory laparotomy; and Libman reports an autopsy which showed a healed abscess of the liver and pylephlebitis, the patient having died of an abscess in the mesentery. Of the 114 cases, in 21 the portal vein was reported clear; in 38 no mention of the portal was made; and in 55 a pylephlebitis of the main trunk was reported. If we take as having no portal phlebitis one third of the cases in which no mention was made of the condition of the portal, we shall have 13 cases, and if we add these to the 21 in which we know that the portal was clear, we have 34 cases which are operable so far as the condition of the portal vein is concerned.

We have then out of 114 cases 35 which are operable so far as the condition of the liver is concerned, and 34 in which the condition of the portal vein would permit of operation; but, unfortunately, these groups of cases are not the same, and of the two groups which are operable so far as both conditions are concerned, there are at most 18 cases or 16%. It must be remembered, however, that the condition of practically all these cases is that found at autopsy, and it seems but fair to suppose that a certain propor-

tion of the inoperable cases might have been found operable early in the course of the disease. The cases of Owen and Fashen, and those cases of a large abscess surrounded by a colony of small ones, tend to prove that multiple infections of the liver may take place from the primary focus in the liver. In Owen's case the infection of the liver resulted from contact of pus at the hilus, causing a small abscess in the liver at this point and another in the right lobe; while in Fashen's case a perforated gastric ulcer connected with a large abscess in the right lobe, and many smaller ones filled both lobes.

Clinically those cases are inoperable in which the temperature is very irregular, with frequent chills, and in which there are very acute symptoms, — that is, those cases in which there are symptoms of pylephlebitis and multiple abscesses. Those cases should be operated upon in which after two to seven days the acute symptoms are subsiding, the temperature becoming somewhat more regular, and the chills, if present at all, infrequent; or in which the onset of the symptoms is insidious with infrequent chills and moderately irregular temperature.

Of the 114 reported cases of abscess of the liver 16, or 14%, were operated upon for drainage of the abscess. Of the 16 cases, 7, or 44%, recovered; while of those not operated upon none recovered. We have shown above that at least 16% should be operated upon early, but what operation should be done? Obviously, the location of the abscess, if it could be determined, would aid very materially in deciding upon the best route to be employed. Of the reported cases the abscesses were situated in the right lobe in 50%; they were in both lobes in 44%; in the left lobe in 6%. Of those in the right lobe a very large proportion were in the posterior superior portion. Therefore, we must in these cases reach the posterior superior surface of the right lobe. This can be done best by the transpleural route, to which, however, there are some serious objections, the most important of which is the danger of infecting the pleural cavity. The infection will undoubtedly take place in some cases, as it did in three reported by Patel; but it is not necessarily a fatal complication, for all three of his cases recovered. Another objection to the transpleural route is that it gives a view of only a limited area of the surface of the liver. This difficulty, however, may be largely overcome by resecting a sufficient number of ribs.

That this route is not always to be employed, is quite evident, and I believe that in many cases a preliminary exploratory laparotomy should be performed. Abscesses of the under surface of the liver could in this way be found, and by careful exploration of the liver with the hand, and aspirating needle, abscesses in other portions might be located. If, however, nothing is seen on the under surface and the abscess cannot be located, the transpleural route with resection of one or more ribs should be employed. The opening should be large enough to permit intelligent exploration of the upper surface of the right lobe. This can be done with comparative safety if, after resecting the ribs and before opening the pleural cavity, the surgeon sutures the diaphragm to the intercostal muscles about the whole wound; or if, after resecting the ribs, he takes care that the parietal pleura is held against the diaphragm to prevent pneumothorax when the pleural cavity is opened. The edge of this wound may then be sutured to the diaphragm, before the opening is made into the abscess cavity. After opening through the diaphragm, a second row of sutures may be placed about the edge, to make the shutting off of the pleural cavity doubly certain, before the abscess is opened. If the liver is not adherent to the diaphragm, the abdominal cavity should be walled off by thin strips of gauze, or the wound may be packed with gauze for twenty-four hours before the abscess is opened. Suturing of the edge of the wound to the liver may be attempted, but if the liver is not already adherent, this will in most cases be found impossible.

In 1887 Lannelongue recommended "the resection of a triangular or trapezoidal segment of the thoracic wall of which the costal border is the base or greatest side," for the drainage of subphrenic abscesses and exploration of the upper surface of the liver. The length of the base of the triangular flap may be made of any size deemed necessary.

This operation, when tried on a cadaver, did not give the amount of room necessary for exploration of the posterior-superior surface; nor did it increase the amount of liver surface exposed sufficiently to warrant such a formidable procedure.

Rhoads recommends an exploratory incision along the costal border first. If the abscess is found on the posterior-superior surface, he recommends the resection of one or more ribs; but instead of a transpleural route he uses a transthoracic route. The parietal and diaphragmatic pleura, he says, will separate very easily. The pleura, both parietal and diaphragmatic, is separated and raised up, the diaphragm is then incised below the pleura, and abdominal cavity opened without entering the pleural cavity. If a hole is made in the pleura in separating it, the diaphragm is at once sutured to the intercostal muscles by a continuous catgut suture. If the diaphragm is adherent to the pleura, the incision is carried directly through the pleura and diaphragm.

I have no doubt that the transpleural route is the most satisfactory in the great majority of cases, but no particular operation can be indicated in all cases.

It is interesting to note that of the 7 recoveries, in 3 (Koerte, Loison, Jones) one or more ribs were resected; in 2 (Morton, Jones) the abscess was in the left lobe and drained through the abdomen; in one (Sheen) it was in the right lobe and drained through the abdomen; while in another (Burrell and Bottomley), after an abdominal incision had been made and closed, the abscess ruptured through the incision.

Of the four cases of abscess of the liver herewith reported, two were undoubtedly the result of appendicitis; one was possibly the result of appendicitis, though there was no definite proof of this; and one was the result of an abscess in the region of the pylorus (probably a perforated gastric ulcer). Two of these cases were fatal, in two the patients recovered.

Case I. M. M., female, aged thirteen, entered the Brockton Hospital on Jan. 10, 1901, during the service of Dr. E. C. Frost. The symptoms were those of appendicitis with abscess. Dr. Frost drained the abscess, but did not remove the appendix, as it made up part of the abscess wall. Two days after operation the temperature rose from 99° to 102°, and remained between 100° and 103° until Jan. 25, when the patient complained of severe pain in the lower part of the right chest over the liver. On the 29th and on the 30th had a chill. Respirations were shallow, 35 to 40 per minute, and there was extreme tenderness and pain over the lower part of the right chest. The temperature then began to go down and reached normal on Feb. 2. From this time until March 6 when I saw the patient, the temperature ran an irregular course between normal and 102°, remaining normal at times for one, two, or three days. I found her emaciated and exceedingly weak, but not jaundiced. The liver was enlarged and slightly tender. In the posterior axillary line over the 8th and 9th rib was a small area of tympany. An aspirating needle was put into the liver here and a small amount of foul pus was obtained.

Operation. — The patient was etherized and the 9th rib in the posterior axillary line was resected. The pleural cavity was opened and the diaphragm found pushed up against the chest wall, but not adherent to it. The drawing of a small amount of air into the pleural cavity during respiration was noticed, but it was stopped by holding the chest wall down upon the liver. A continuous cat-gut suture was put in about the whole wound, suturing the diaphragm to the costal muscles. The diaphragm was then incised, showing the liver to be nowhere adherent to it. The area exposed was, however, very dark. This region was walled off with strips of gauze, to prevent infection of the abdomen. A small incision was then made in the liver, where the aspirating needle had entered; and the finger was carried upward and backward, through the substance of the liver for about two inches, where a cavity the size of an orange, filled with thick foul pus, was found. A rubber tube and gauze packing were put in for drainage and for the control of the hemorrhage.

The patient made an uninterrupted recovery except for one or two days, when the opening narrowed down too much to allow free drainage. In eight weeks she left the hospital with the wound entirely healed.

Case II. F. G., male, aged thirty-two, entered the Brockton Hospital on May 7, 1901, during the service of Dr. F. J. Ripley. There was a history of severe pain in the right upper abdomen, of sudden onset, two days before entrance. The history suggested appendicitis; but on physical examination nothing could be found except an indefinite tenderness on deep palpation high up under the right costal border. The patient continued to have constant moderate pain in the epigastrium, with temperature between 99.5° and 101°, until May 26, when there was a sudden rise to 102.5°. On May 30 there was a severe chill. Between May 30 and June 18, inclusive, there were six chills, followed by profuse sweating, nausea, and vomiting. The temperature was not very irregular and not above 102°, except immediately after the chills. During this time pneumonia was first considered, as there was rusty sputum part of the time, with some dulness, pain and tenderness over the right side of the chest. Tuberculosis also was thought of, but no tubercle bacilli were found. The patient, though not very sick, was steadily losing ground; and although nothing could be found except a very indefinite tenderness in the epigastrium and a leucocytosis of 15,000, an exploratory laparotomy was decided upon after a consultation with Dr. W. H. Smith.

Operation. — Incision showed a small abscess about the pylorus, surrounded by a thick wall of adhesions. The abscess cavity was packed, and the liver examined. The left lobe was enlarged downward somewhat, was very much thickened and darkly mottled. An aspirating needle was used, but no pus could be obtained. On holding up the left lobe in order to examine the under surface, I tore into an abscess in the left lobe close to the great fissure. This abscess cavity was examined with the finger, and was found to run forward on the under surface of the liver and across the fissure into the right lobe. Three gauze wicks were left in: one running down to the foramen of Winslow, one into the abscess cavity about the pylorus, and another into the abscess in the liver. One week after the operation there was a profuse discharge of bile through the wound, and the stools became clay colored. The patient was in a wretched condition for another week, when the discharge of bile began gradually to lessen, and in three weeks had entirely ceased. Five weeks after the operation he left the hospital perfectly well.

Case III. J. McD., female, aged twenty-two, entered the Carney Hospital during the service of Dr. Temple on Sept. 19, 1902. This patient had been on a visit to her home in Nova Scotia, and the night before leaving there she went to a party where she ate very heartily. The next day, Sept. 16, on her way to Boston, she had a cold lunch with a good deal of fruit. In the afternoon she was attacked with severe abdominal pain, with nausea, vomiting, and diarrhea. The pain and diarrhea continued until the day after entrance to the hospital when it ceased. The patient's general condition, however, did not improve. Her previous history was negative, except that she had had a somewhat similar attack several months before. On Sept. 22, she became much worse, with pain in the right side in the region of the gall bladder, a chill, with a temperature of 103°, and a pulse of 110. On Sept. 23, she was slightly jaundiced. She had a chill, and the pain and tenderness had moved farther to the left. Sept. 24, she had a severe chill with a temperature reaching 104°, and a pulse of 120. She was rapidly losing ground.

Operation. — On Sept. 24, the patient was transferred to the surgical side, and laparotomy was performed. When the abdomen was opened the gall bladder was found to be normal; but the liver was dark and congested, and the under surface of the left lobe was mottled with light colored spots from ½ cm. to 2 cm. in diameter. The lobe was thickened but did not project much below normal limits. The left lobe was aspirated but no pus was obtained. A small drop was seen to ooze from a needle hole however. The finger was introduced at this point and numerous small cavities were opened up. The large cavity was then packed with gauze. The liver was hurriedly palpated, but no definite focus could be felt. The condition of the patient was such that nothing further could be done.

Sept. 25. Patient seemed somewhat better, more comfortable, no chill.

Sept. 26. Patient grew worse gradually and died.

The liver was examined through the abdominal

wound, as no autopsy was allowed. It was found to be filled with minute abscesses. The whole posterior-superior surface was covered with multiple abscesses.

Considering the attack of abdominal pain some months before entrance, and the symptoms in the beginning of this attack, it seems possible that the infection of the liver was owing to a mild appendicitis.

CASE IV. H. R., male, aged twenty-two, wire weaver, entered the Massachusetts General Hospital on July 28, 1903. He had walked into the Out-Patient Department in the morning. The history was as follows: The patient had always been well except that for the last year or more he had had indigestion, with occasional "attacks of stomach ache." Two weeks before entrance he was taken with a violent pain in the abdomen, but did not vomit. Bowels had not moved for nine days except a very slight movement two days before entrance. The patient had had considerable morphia every day. He seemed dull and unwilling to answer questions, so that it was impossible to get any further details of the symptoms for the two weeks preceding entrance to the hospital. Physical examination showed a man fairly well developed and fairly nourished. He did not seem to have any pain, but he looked pale and sick. The abdomen was rather full and slightly rigid. There was no shifting dullness in the flanks. No enlargement of the liver could be detected by percussion. In the epigastrium and extending down the right side there was marked tenderness; but the patient referred to the epigastrium the pain caused by pressure on the right side. There was no mass to be felt in the abdomen. Rectal examination was negative. The temperature was 1030; the pulse 105. A diagnosis of appendicitis had been made, but this was considered hardly possible, and diagnosis of a perforated gastric ulcer which had localized, was considered probable.

Operation. — Operation July 28, 1903. Under ether no mass could be made out. In the abdomen there was a slightly increased amount of clear fluid. Between the gall bladder and pylorus were a number of old adhesions, but otherwise the gall bladder was normal. The liver was somewhat darker than normal, but was not increased in size. It was examined with the hand, but no irregularity was felt. The falciform ligament was edematous. In the neighborhood of the pylorus, both in the gastrohepatic and great omenta, there were enlarged glands. The lesser peritoneal cavity was almost obliterated by adhesions. No thickening or congested area could be found anywhere on the stomach.

As no adhesions were found in the region of the appendix when it was first examined appendicitis was ruled out; but a more careful examination just before closure of the abdomen showed the appendix to be about 2½ inches long and thickened. Just beneath it in its mesentery was an abscess the size of a filbert. The appendix and mesentery were tied off and removed. It was felt at this time that the appendicitis was not sufficient to account for the condition of the patient, and abscess of the liver was suspected.

July 30. Abdomen still rigid, temperature 101°, leucocytosis of 38,000.

Aug. 1. Leucocytosis 21,000. Widal's reaction negative. Patient says he feels better but condition had not improved.

Aug. 7. Leucocytosis 27,000. Widal's reaction negative. Patient's general condition less satisfactory; he is still tender in the epigastrium.

Aug. 13. A tender mass in the left epigastrium, first noted two days ago, has been increasing in size. Operation advised, but refused by the patient. No bile in urine.

Aug. 15. Severe chill last night and this morning.

Operation. — The mass in the epigastrium, which proved to be the adherent liver, was opened into with cocaine. The finger was introduced and several small abscess cavities containing a very thick mucoid looking pus were found. The finger broke up abscesses as far as it could reach, — apparently in the left lobe. Tube and gauze drainage were put in.

A culture from the pus showed a large unknown bacillus.

Aug. 16. Chill. Patient emaciating very rapidly.
Aug. 17. More abscesses opened with the finger.
Aug. 21. Two slight chills.
Aug. 22. More abscesses broken up with the finger.
Aug. 24. Patient died.

An interesting point about this case was that the breaking up of the liver with the finger caused no great pain, the patient complaining only of a pain in the back.

REFERENCES.

Ashby: Lancet, Nov. 1, 1879, vol. ii, page 649.
Becker: Hahnemann Monthly, Phila., 1898, vol. xxiii, page 421.
Berthelin: These, Paris, 1895.
Burrell and Bottomley: Med. & Surg. Reports, Boston City Hospital, 1898, page 131.
Caley: Lancet, Feb. 10, 1900, page 378.
Chauffard: Arch. de Physiologie, 1883, page 263.
De Giennes: Bull. de la Soc. Anatomie de Paris, 1883, vol. xxviii, page 168.
Dieulafoy: Sem. Med., 1898, page 449.
Fashen: Lancet, 1902, vol. i, page 1535.
Filz: Am. J. Med. Sciences, Oct., 1886, page 321.
Koerte: Berlin Klin. Wochenschrift, 1892, page 794.
Lannelongue: Cong. Chir., 1888, page 358.
Legg: St. Bartholomew's Hosp. Reports, 1875, vol. xi, page 85.
Libman: Proc. N. Y. Path. Soc., 1901–2, no. 1, page 140.
Loison: Rev. de Chir., 1900, page 522.
McClelland: Lancet, 1886, vol. i, page 686.
Monnier: Bull. de la Soc. Anat., 1892.
Morton: Bristol Medico-Chirurgical Journ., 1897, vol. xv, page 323.
Munro: Boston M. & S. J., vol. cxlvi, page 81.
Netter: Société Clinique, 1882.
Owen: Med. Mirror, St. Louis, 1890, vol. i, page 221.
Patel: Gaz. Hebdomadair de Med. et de Chir., June 16, 1901, vol. xlviii, page 565.
Rhoads: American Medicine, Oct., 1903.
Rolleston: Tr. Path. Soc., London, 1897–98, vol. xlix, page 101.
Sheen: London Practitioner, 1896, vol. lvi, page 607.
Starr: Tr. Path. Soc., Phila., 1879–81, vol. x, page 28.
Treves: Lancet, 1894, vol. i, page 663.
Wood: Brooklyn Med. J., 1900, vol. xiv, page 936.

CONCLUSIONS FROM A SERIES OF MEASUREMENTS OF BLOOD PRESSURE IN FEVERS, BEFORE, DURING AND AFTER THE ADMINISTRATION OF STRYCHNIA.*

BY RICHARD C. CABOT, M.D., BOSTON.

1. THE cases included in this study were all febrile. Among them were 31 cases of typhoid fever, 4 of pneumonia and 15 others with a variety of diagnoses.

2. In 32 cases the strychnia was given by mouth and in 18 subcutaneously. The total daily dose was usually ½ gr., sometimes ⅙ gr. Except in a few instances, the diet and position of the patient remained the same throughout the experiment.

3 The records were continued for days, and occasionally for weeks before and after the drug was given, in order that the regular range of variation in the blood pressure might be ascertained.

4. The measures were taken with Stanton's modification of the Riva-Rocci instrument. The maximum pressure was recorded as the height of the mercury column at the moment of the disappearance of the radial pulse, and the

* Read before The Massachusetts Medical Society, June 7, 1904.

minimum as the trough of the wave of greatest oscillation of the column.

5. Measurements were taken at various intervals of time succeeding the administration of strychnia, from a few minutes to several hours. The observations extended over about eight months and included over 5000 measurements.

6. The total result is negative. I have been unable to convince myself that strychnia exerts any influence upon the blood pressure of febrile cases when given in manner and dose above mentioned.

7. In the twenty-four hours following the administration of the drug there was a rise 5 mm. or more of pressure in 16 cases, a fall in 17 cases, and no change in 24. The average pressure in the 50 cases that received a daily dose of strychnia was no greater than in 18 cases without any drug.

8. To me one of the most striking features of the investigation was the fact that while strychnia and whiskey seemed to be entirely without influence upon the blood pressure, the sight of the dinner-tray or the prospect of getting up produced a most obvious, though transient, rise in the pressure. The only permanent gains in pressure occurred when the patient reached the crisis in pneumonia, or when convalescence enabled him to get up and walk.

9. As in the alcohol research of last year, I do not wish to be construed as saying that the drug under investigation is of no value. To prove so general a negative my work is altogether insufficient. My conclusion is, that in the dosage employed strychnia does not raise or in any way affect the maximum or minimum blood pressure so far as can be determined by the instrument employed.

DISCUSSION.

Dr. Henry Jackson of Boston: It seems that the experiments certainly prove that, as far as we can tell, the blood pressure is not increased by the administration of strychnia. We do not know that an increase in the blood pressure is necessarily an indication of increased strength of heart.

Personally, I should be much against giving up the use of strychnia. However, I admit that my own experiments made at the hospital have been in accord with the observations made by Dr. Cabot, but it does not make me feel that I do not care to use strychnia.

Dr. E. A. Locke of Boston: I have been associated only in a very remote way with this investigation, and consequently cannot speak authoritatively for Dr. Cabot. There certainly can be no doubt as to the action of strychnia on the circulation. Numerous animal experimentations have shown its action on the circulation to be two-fold; first, it acts on the vasomotor nerves, causing a constriction of the peripheral blood vessels, with a consequent rise of blood pressure; and second, the rate of the heart's action is slowed. There is every evidence that a similar action takes place in man. Personally, I believe that strychnia has a very definite action, and I doubt very much if Dr. Cabot, were he present, would deny this on the strength of his negative results with the Stanton apparatus.

EXAMINATION OF PLEURAL FLUIDS WITH REFERENCE TO THEIR ETIOLOGY AND DIAGNOSTIC VALUE.

BY PERCY MUSGRAVE, M.D., BOSTON.

(Continued from No. 12, p. 321.)

CANCEROUS CASES.

Three cases which I have been able to examine have all showed a relatively large amount of endothelium occurring with a predominence of lymphocytes. The endothelial plaques appeared in all of these cases, which we have previously mentioned were extremely uncommon in tuberculosis, and the albumin and specific gravity indicated an inflammatory process rather than a transudate.

Further research upon the formula for cancer is necessary.

One case cannot be classified from the examination of the fluid or from the clinical history.

CLASS I. —TUBERCULOUS CASES.

Case 1. — A. C., twenty-one, s., Italy, railroad brakeman. Aug. 3, 1903. F. H. and P. H. negative. Habits good. Pres. ill. — No symptoms up to five days before entrance. Chill (?), fever and malaise followed by severe pain in the lower left chest, increased by deep breathing and coughing. Phys. exam. — W. D. and fairly W. N.; left pleural effusion; examination otherwise negative. Temperature at entrance 103.5, gradually reaching normal within a week. Pulse averaged 80, respiration, 25 to 30. Blood: whites — 26,400; no Widal. *Aug.* 4, *chest tapped, fluid:* amount 12½ oz., hemorrhagic, sp. gr. 1,022, alb. 2%; sed.: lymphocytes 85%, polynuclears 12%, large mononuclears 2%; large number of red corpuscles. Cultures: no growth. Pig inoculated; autopsy Sept. 9: pig tuberculous; bacilli demonstrated. Diagnosis from fluid: primary tuberculous pleurisy. Patient made marked improvement, no symptoms of cough, and was discharged relieved Aug. 19. Clinical diagnosis: pleurisy with effusion.

Case 2. — J. S., twenty-four, s., Italian, laborer. Nov. 13, 1903. F. H. negative, P. H. negative. Habits good. Pres. ill. — Dyspnea for one month; no edema; no palpitation; slight pain in left axilla; worked up to day of entrance. Loss of weight, night sweats, slight cough for two days, no expectoration. Phys. exam. — W. D. and N., slightly pale, cardiac displacement to right, left pleural effusion; examination otherwise negative. Temperature irregular with moderate morning remissions; pulse averaged about 100 and respirations 20. Blood: whites — 9,300. *Nov.* 14 *chest tapped, fluid:* amount 3¾ pints, color yellow, turbid, alkaline, alb. 2%, sp. gr. 1,020; sed.: lymphocytes 76%, polynuclears 18%, endothelial cells 5%, eosinophiles 1%; considerable number of red corpuscles. Dec. 1, fluid had reaccumulated; tapped, amount 5 pints, hemorrhagic, considerable coagulum, alkaline, alb. 2%, sp. gr. 1,020; sed.: lymphocytes[11] 96%, polynuclears 1%, endothelium 1%, large mononuclears 2%. Inoscopy: negative. Three pigs inoculated: autopsies on Jan. 10 (2) and 15 negative. Patient improved, and was discharged much relieved, Dec. 17. Clinical diagnosis: pleurisy with effusion. April 20, 1904, patient entered Out-Patient Department with pleural effusion. *Chest tapped, fluid:* straw colored, no coagulum, alb. 2%, sp. gr. 1,019; sed.: slight, lymphocytes 90%, polynuclears 8%, endothelium 2%;

[11] Two hundred and fifty cells were counted where no number is given.

moderate number of red corpuscles; no bacteria seen. Pig inoculated; autopsy May 17, 1904; pig tuberculous; bacilli demonstrated. Diagnosis from fluid: primary tuberculous pleurisy.

CASE 3. — F. D., thirty-eight, s., Canadian, building mover. Dec. 6, 1903. F. H. and P. H. negative. Habits: moderate alcoholic excess. Pres. ill. — For five weeks felt feverish and chilly, slight cough without expectoration, no pain; for four weeks has noticed increasing dyspnea. Phys. exam. — W. D. and muscular. Lips slightly cyanotic. Heart not displaced. Lungs: right pleural effusion; examination otherwise negative. Temperature averaged between 101 and 102½ for eight weeks, gradually reaching normal in the ninth and tenth weeks; pulse averaged about 90 and respirations about 25. Blood: whites — 6,900; Widal negative. *Dec. 8, chest tapped, fluid:* amount 28 oz., color orange, considerable coagulum, alkaline, alb. 2½%, sp. gr. 1,020; sed.: lymphocytes 91%, polynuclears 8%, eosinophiles ½%; large mononuclears ½%; cultures: no growth. Inoscopy: negative. Pig inoculated; autopsied Jan. 15, 1904; pig tuberculous. T. B. demonstrated. Diagnosis from fluid: primary tuberculous pleurisy. Patient improved slowly, and Jan. 27 was discharged well. Clinical diagnosis: pleurisy with effusion. Thickened pleura.

CASE 4. — J. C., twenty-five, s., Italian, laborer. March 20, 1903. F. H. negative; P. H. unimportant. Habits good. Pres. ill. — For five weeks slight dry cough; for five days pain in left lower chest increased by deep inspiration. No sputum. Phys. exam. — W. D. and N. Heart not displaced. Lungs: signs of left pleural effusion; examination otherwise negative. Temperature averaged from 100 to 102, gradually coming down; pulse averaged 100; respirations 25 to 30. Blood: whites — 10,600. Tuberculin test negative. *March 25, chest tapped, fluid:* amount 22 oz., straw colored, slight coagulum, alkaline, alb. 5.6%, sp. gr. 1,020; sed.: lymphocytes 99%, polynuclears ½%, endothelium ½%. Cultures: no growth. Pig inoculated; autopsied May 7; pig tuberculous; bacilli demonstrated. Chest tapped again March 31; fluid similar to that of the 25th; also April 4 chest tapped, fluid same. Diagnosis from fluid: primary tuberculous pleurisy. Slow improvement; April 24 discharged much relieved. Clinical diagnosis: pleurisy with effusion.

CASE 5. — T. P. M., thirty-two, m., American, teamster. April 24, 1903. F. H. one brother tuberculous (?). P. H. negative. Habits: slight excess of alcohol and tobacco. Pres. ill. — For three weeks moderate cough, no sputum; for six days increased cough with chill, headache, malaise, pain in left chest on deep inspiration; increasing dyspnea. Phys. exam. W. D. and N. Color good; heart displaced to right. Lungs: signs of left pleural effusion; examination otherwise negative. Temperature averaged between 99 and 101, gradually coming down; pulse averaged 95; respirations 25. Blood: whites — 7,300. *April 26, chest tapped, fluid:* amount 1,920 cc.; straw colored, very slight coagulum, alkaline, alb. 3%, sp. gr. 1,023; sed.: scanty, lymphocytes 98.8%, polynuclears 1.2%; few red corpuscles. Culture: no growth. Pig inoculated; autopsied June 1; pig tuberculous. T. B. demonstrated. Chest tapped again April 30 and May 4, amounts 36 and 24 oz. Fluids of the same character as that of the 26th. Diagnosis from fluid: primary tuberculous pleurisy. Discharged much relieved, May 4. Clinical diagnosis: pleurisy with exudation.

CASE 6. — D. H., forty-one, m., American, lather. Sept. 21, 1903. (O. P. D.) F. H. and P. H. negative. Habits: alcohol to excess. Pres. ill. — Two weeks malaise, pain in chest, increased by deep inspiration; dry cough, anorexia. Phys. exam. — Heart negative. Lungs: left pleural effusion. Blood: no leukocytosis. Temperature not taken. *Sept. 21, chest tapped, fluid:* amount 3 to 4 oz., orange yellow, very slight coagulum, alb. 1½%; sed.: lymphocytes 80%, polynuclears 13%, endothelium 3%, large mononuclears 4%. Culture: no growth. Inoscopy: not sufficient coagulum. Pig inoculated; autopsied Oct. 18, 1903; pig tuberculous. T. B. demonstrated. Diagnosis from fluid: primary tuberculous pleurisy. Clinical diagnosis: tuberculous pleuritic effusion and alcoholism.

CASE 7. — W. D., thirty-six, s., Canadian, engineer. Oct. 9, 1903. (O. P. D.) F. H. and P. H. negative. Habits good. Pres. ill. — Came to the hospital for relief of dyspnea and cough. Phys. exam. — Temperature 98.8; heart displaced to right. Lungs: left pleuritic effusion. *May 21 chest tapped, fluid:* amount 21 oz.; sed.: lymphocytes 72%, polynuclears 23%, endothelium 2%, large mononuclears 3%; considerable number of red corpuscles. Inoscopy. T. B. found. Pig inoculated; autopsied Dec. 4; pig tuberculous. T. B. demonstrated. Diagnosis from fluid: primary tuberculous pleurisy. Clinical diagnosis: pleurisy with effusion.

CASE 8. — S. R. (colored), eleven, s., school girl. July 10, 1903. (O. P. D.) F. H. good. P. H. unimportant. Pres. ill. — Cough accompanied by fever and night sweats, thick yellowish sputum. Phys. exam. — Signs of bronchitis with question of apical phthisis. Sputum: no tubercle bacilli found. Aug. 28. Sputum: no tubercle bacilli found. Phys. exam. — Signs of bronchitis persist. Oct. 10. Sputum; no tubercle bacilli; symptoms and signs as before. Same condition continued with repeated examination of sputum up to Dec. 26, 1903. Phys. exam. — Temperature 100, pulse 120, respirations 44, heart displaced to right. Lungs: left pleural effusion. Blood: whites — 13,600. *Chest tapped, fluid:* straw colored, moderate coagulum, alb. 1½%, sp. gr. 1,020; sed.: lymphocytes 80%, polynuclears 15%, eosinophiles 2-5%, mast 2-5%, endothelium 1 1-5%, large mononuclears 3%; few red corpuscles. Inoscopy: negative. Pig inoculated; autopsied Jan. 20; pig tuberculous. T. B. demonstrated. Diagnosis from fluid: primary tuberculous pleurisy. Entered the hospital Dec. 26, 1903. Temperature fluctuated between 99 and 101, gradually coming down; pulse averaged 100 to 110; respirations 30. Blood: whites — 12,100. Sputum: no tubercle bacilli found. Case improved. Jan. 3, 1904, discharged much relieved. Clinical diagnosis: pleurisy.

CASE 9. — M. C., nineteen, s., Greek. Aug. 1, 1903. (O. P. D.) F. H. good. P. H. unimportant. Pres. ill. — Pain in left chest, cough, slight expectoration. Phys. exam. — Lungs: left pleural effusion. *Chest tapped, fluid:* amount 8 oz., straw colored; sed.: necrotic cells predominate to such extent as to render differential of little value, but majority of cells appear to be lymphocytes. Pig inoculated; autopsied Sept. 9, 1903; pig tuberculous. T. B. demonstrated. Diagnosis from fluid: secondary tuberculous pleurisy. Clinical diagnosis: pleurisy with effusion.

CASE 10. — W. C., fifty-two, m., Irish, laborer. Aug. 6, 1903. (O. P. D.) F. H. negative. P. H. unimportant. Pres. ill. — Came to the hospital on account of shortness of breath and anorexia. Difficulty in swallowing. Phys. exam. — Left pleural effusion. *Chest tapped, fluid:* amount 1½ pints, straw colored, serous, considerable coagulum; sed.: lymphocytes 72%, polynuclears 24%, eosinophiles 1%, large mononuclears 3%; small number of red corpuscles.

Pig inoculated; autopsied Sept. 9, 1903; pig tuberculous. T. B. demonstrated. Diagnosis from fluid: primary tuberculous pleurisy. Blood: whites — 7,200. Last seen Aug. 10, 1903, when he was improved. Clinical diagnosis: tubercular pleuritic effusion. Dysphagia.

Case 11. — H. P., twenty-two, m., American, telephone operator. July 27, 1903. (O. P. D.) P. H. negative. Pres. ill. — Four weeks before entrance had pain in right lower chest for three weeks, slight cough, some sputum, loss of weight 30 lbs. Phys. exam. — Pleurisy with effusion. *July 28, chest tapped, fluid:* amount 39 oz., straw colored, sp. gr. 1,020; sed.: lymphocytes 96.7%, polynuclears 1%, eosinophiles .3%, endothelium 1.3%, large mononuclears .6%; few red corpuscles. Culture: no growth. Pig inoculated; autopsied Aug. 27, 1903; pig tuberculous. T. B. demonstrated. Diagnosis from fluid: primary tuberculous pleurisy. Aug. 4, 1903, patient seen for the last time; better. Temperature 99 to 100. Clinical diagnosis: tuberculous pleural effusion.

Case 12. — M. S., fifteen, s., Irish, rubber factory. Aug. 14, 1903. (O. P. D.) F. H. good. Pres. ill. — For two months intermittent pain in right side, slight cough; for one week cough has increased. Phys. exam. — W. D. and fairly nourished. Temperature 102½. Heart displaced to left. Lungs: right pleuritic effusion. *Chest tapped, fluid:* amount 30 oz., straw colored, slightly turbid, alb. 1½%, sp. gr. 1,016; sed.: lymphocytes 86%, polynuclears 8%, endothelium 4%, large mononuclears 2%; moderate number of red corpuscles. Culture: no growth. Pig inoculated; autopsied Sept. 14, 1903; pig tuberculous. T. B. demonstrated. Diagnosis from fluid: primary tuberculous pleurisy. Clinical diagnosis: pleural effusion; insidious onset.

Case 13. — H. McL., fifty, s., Irish, mason. Sept. 4, 1903. F. H. good. P. H. negative. Habits: slight alcoholic excess. Pres. ill. — For three weeks chilly sensations, slight cough, and pain in left chest; dyspnea, occasional night sweats; lost 15 lbs. in a year. Phys. exam. — W. D. and fairly W. N.; good color. Heart negative. Lungs: signs of left pleural effusion; examination otherwise negative. Temperature at entrance 103, falling to normal on the second day. Blood: whites — 7,100. Sputum not obtained. *Sept. 4, chest tapped, fluid:* amount 80 oz., straw colored, moderate sized coagulum, alb. 1.8%, sp. gr.; 1,018 sed.: lymphocytes 94%, polynuclears 3%, endothelium 1%, large mononuclears 2%; few red corpuscles. Culture: no growth. Inoscopy. T. B. found. Pig inoculated; autopsied Sept. 28, 1903; tuberculous. T. B. demonstrated. Diagnosis from fluid: primary tuberculous pleurisy. Rapid improvement. Sept. 12, 1903, discharged, much relieved. Clinical diagnosis: tubercular pleurisy.

Case 14. — J. L. McN., thirty-two, m., Canadian, teamster. March 16, 1904. F. H. good. P. H. Chest injured by elevator four months before entrance. Habits: slight alcoholic excess. Pres. ill. — For seventeen days malaise, pain in right side increased by deep inspiration; gradually decreasing pain; dyspnea for one week; slight dry cough for three weeks. Phys. exam. — W. D. and N.; good color. Heart displaced to right. Lungs: left pleural effusion. Examination otherwise negative. Temperature gradually coming down to normal in ten days; pulse averaged 90; respirations 25 to 30. Blood: whites — 9,200. Sputum; no tubercle bacilli. *March 16, chest tapped, fluid:* amount 44 oz., greenish yellow, slightly opalescent, moderate coagulum, alb. 3%, sp. gr. 1,025; sed.: slight, count of 275 cells, lymphocytes 96%, polynuclears 4%; few red corpuscles. Culture: no growth. Inoscopy: not sufficient clot. Pig inoculated; autopsied April 21, 1904; tuberculous. T. B. demonstrated. *March 20, chest tapped again:* amount 21 oz.; sed.: lymphocytes 94%, polynuclears 3%, endothelium 3%. Pig inoculated; autopsied April 28; negative. *March 24, chest tapped again:* amount 4 oz.; sed.: lymphocytes 98%, polynuclears 1%, endothelium 1%. Pig inoculated; autopsied May 13; negative. Diagnosis from fluid: primary tuberculous pleurisy. Patient gradually improved, and was discharged much relieved March 29. Clinical diagnosis: pleurisy with effusion. On May 24, patient returned to O. P. D. with reaccumulation of fluid in chest. Chest tapped: dirty, yellowish thin pus withdrawn, no odor, no growth on blood serum, but had digestive action. On coverslip few organisms morphologically resembling pneumococci and streptococci; no tubercle bacilli found. Pig inoculated with pus died in two days; negative.

Case 15. — P. D., nineteen, s., Italian, laborer. July 31, 1903. F. H. good. P. H. negative. Habits: moderate alcoholic, excess at times. Pres. ill. — For two weeks malaise, soreness and pressure in left chest; slight cough; no sputum. Phys. exam. — W. D. and N. Face flushed; heart displaced to right. Lungs: left pleural effusion; examination otherwise negative. Temperature normal or subnormal most of the time, first three days 99 to 101. Pulse irregular, 80 to 100; respirations averaged 25. Blood: whites — 6,000. *Chest tapped, fluid:* amount 300 cc., straw colored, slightly turbid, considerable coagulum, alb. 1% —, sp. gr. 1,020; sed.: count of 300 cells, lymphocytes 96.6%, polynuclears 1%, endothelium 1%, large mononuclears 1.4%; very few red corpuscles. Culture: no growth. Pig inoculated; autopsied Sept. 9, 1903; pig tuberculous. Bacilli demonstrated. Clinical diagnosis: pleurisy with effusion.

Case 16. — W. C., eleven, American. (Inf. Hosp.) Sept., 1903. F. H. One brother died at seventeen with phthisis. P. H. Always well. Pres. ill. — For ten days epigastric pain, loss of appetite, cough without expectoration, lassitude, loss of flesh, for two days feverish and chilly. Phys. exam. — left pleural effusion. Heart displaced to right. Poorly developed and very poorly nourished. *Sept. 21, 1903, chest tapped, fluid:* amount 27 oz., dark straw colored, much coagulum; sed.: lymphocytes 96%, polynuclears 2%, large mononuclears 2%; considerable number of red corpuscles. Inoscopy: tubercle bacilli found. Pig inoculated; autopsied Oct. 18, negative. Diagnosis from fluid: primary tuberculous pleurisy. Clinical diagnosis: pleurisy with effusion.

Case 17. — M. L. (female) thirty-nine, m., Irish, housewife. Nov. 25, 1903. F. H. and P. H. negative. Habits good. Pres. ill. — For three weeks sharp pain in left side; chilly sensations, dyspnea, cough, white expectoration, feverish with night sweats, increasing dyspnea. Phys. exam. — Well developed and slightly obese. Heart displaced to right. Lungs: left pleural effusion; examination otherwise negative. Temperature at night averaged 102½, mornings 100, coming down to normal in the third week. Pulse averaged between 100 and 120; respirations 20 to 30, considerable variation. Blood: whites — 14,700. *Nov. 26, chest tapped, fluid:* amount 2 qts., straw colored, opalescent, sp. gr. 1,020; sed.: lymphocytes 96%, polynuclears 2%, endothelium 2%; marked number of red corpuscles. Culture: no growth. Inoscopy: tubercle bacilli found. Pig inoculated; autopsied Jan. 5, 1904, negative. Dec. 1, 1903, fluid had reaccumulated; left chest tapped again: amount 1 qt., character of fluid same. Diagnosis from fluid: primary tuberculous pleurisy. Dec. 16 discharged much relieved. Clinical diagnosis: pleurisy with effusion.

CASE 18.—A. O. (female), twenty-one, s., Italian, candy-maker. Sept. 14, 1903. F. H. and P. H. negative. Habits good. Pres. ill. — For two weeks sharp pain in right side, dry cough, dyspnea, diminishing pain, feverish, no chills, no anorexia. Phys. exam. — W. D. and fairly W. N. Heart displaced slightly to the left. Lungs: right pleural effusion. Physical examination otherwise negative. Temperature averaged normal; highest 100; pulse averaged 90; respirations averaged between 20 and 25; 30 at entrance. Blood: whites — 9,400. *Sept.* 15, *chest tapped, fluid:* amount 30 oz., dark orange, considerable coagulum; sed.: lymphocytes 97%, polynuclears 2%, large mononuclears 1%; red corpuscles fairly numerous. Culture: no growth. Inoscopy: tubercle bacilli found. Pig inoculated; autopsied Oct. 13, 1903, negative. Diagnosis: primary tuberculous pleurisy. Discharged, relieved, Sept. 27. Clinical diagnosis: pleurisy with effusion.

CASE 19.— P. H., sixty-two, Irish laborer, March 16, 1904. F. H. good. P. H. unimportant. Habits good. Pres. ill. — For two weeks sharp pain in right side increased by deep inspiration; cough gradually increasing; little sputum; feverish, no chills; for one week dyspnea; orthopnea. Phys. exam. — W. D. and N. Face and finger nails slightly cyanotic. Heart negative. Lungs: left bronchitis; right pleural effusion; examination otherwise negative. Temperature between 99.5 and 101, gradually coming down to normal in ten days. Pulse averaged 90, respirations 25 to 30. Blood: whites — 6,600. Sputum: no tubercle bacilli found. *March* 17, *chest tapped, fluid:* amount about 3 qts., straw colored, slight coagulum, alb. 3%, sp. gr. 1,022; sed.: marked amount, lymphocytes 94%, polynuclears 3.2%, mast 8%, large mononuclears 2%; marked number of red corpuscles. Culture: no growth. Inoscopy: tubercle bacilli found. Pig inoculated; autopsied May 5, 1904, negative. Diagnosis from fluid: primary tuberculous pleurisy. Patient improved remarkably after tapping and was discharged much relieved on the 30th of March. Clinical diagnosis: pleurisy with effusion.

CASE 20. — M. J. S., sixteen, s., Irish, errand boy. Dec. 28, 1903. F. H. good. P. H. unimportant. Habits good. Pres. ill. — For two months pain in right chest, cough and expectoration lasting two weeks. Return of pain two weeks ago aggravated by deep inspiration. Dyspnea on exertion. Phys. exam. — W. D. and N. Face flushed. Heart negative. Lungs: right pleural effusion; physical examination otherwise negative. Temperature fluctuated between normal and 103; evening temperature rarely below 100 during ten weeks' stay in hospital, except for last week. Considerable wavy variation in pulse rate, average about 100; respirations averaged between 20 and 25. Blood: whites — 14,600. No sputum obtained. Feb. 4, 1904, signs of left pleural effusion. Cardiac displacement to right. Feb. 5 fluid had accumulated rapidly. *Chest tapped, fluid:* amount 34 oz., light straw color, considerable coagulum, alb. 2.1%, sp. gr. 1,021; sed.: lymphocytes 93.5%, polynuclears 4%, endothelium 2.5%; moderate number of red corpuscles. Culture: no growth. Inoscopy: tubercle bacilli found. Pig inoculated; autopsied March 25, 1904, negative. Diagnosis from fluid: primary tuberculous pleurisy. Patient slowly improved. March 9 discharged much relieved. Clinical diagnosis: pleurisy with effusion; double.

CASE 21. — E. W., thirty-one, s. (colored), coal heaver. Dec. 22, 1903. F. H. and P. H. negative. Habits: slight alcoholic excess. Pres. ill. — For two weeks headache at first followed in two or three days by sharp pain in right chest increased by cough and deep inspiration. At entrance little pain, complained of gradually increasing dyspnea. Phys. exam.— W. D. and muscular. Heart: slight displacement to left. Lungs: right pleural effusion. Examination otherwise negative. Temperature ranging between normal and 100; pulse averaged 80; respirations 20. *Jan.* 1, *chest tapped, fluid:* amount 62 oz., color, greenish yellow, opalescent, moderate coagulum, alkaline, alb. 4%, sp. gr. 1,018; sed.: lymphocytes 95%, polynuclears 4%. endothelium 1%; marked number of red corpuscles, Cultures: no growth. Inoscopy: tubercle bacilli found. Pig inoculated; autopsied Feb. 15, 1904, negative. Diagnosis from fluid: primary tuberculous pleurisy. Continual improvement; discharged well on Feb. 15. Clinical diagnosis: pleurisy with effusion.

CASE 22. — O. R., twenty-three, s., American, farmer. Nov. 23, 1903. F. H. and P. H. negative. Habits good. Pres. ill. — Pain in right side, eight days, aggravated by cough and deep inspiration. No expectoration; dyspnea on exertion; chilly sensations, feverish at first. Phys. exam. — W. D. and N. Heart pushed slightly to left. Lungs: sign of right pleural effusion; examination otherwise negative. Temperature did not go above 100 at any time. Pulse averaged 90, respirations 20 to 25. Blood: whites — 9,900. *Nov.* 28, *chest tapped, fluid:* amount 1 pint, color deep orange, considerable coagulum, alb. 2%, sp. gr. 1,021; sed.: lymphocytes 91%, polynuclears 2%, endothelium 2%, large mononuclears 5%; numerous red corpuscles. Inoscopy: tubercle bacilli found. Pig inoculated; autopsied Jan. 1; negative. Diagnosis from fluid: primary tuberculous pleurisy. Improvement. Discharged much relieved Dec. 10. Clinical diagnosis: pleurisy with effusion.

CASE 23. — C. J. W., twenty-two, s., American, street car conductor Feb. 13, 1903. F. H. and P. H. negative. Pres. ill. — Seven months ago cough, obliged to give up work since that time; two and a half months ago bloody sputum for one week. Dyspnea and pain in left side; dyspnea has continued since; gained three or four pounds in seven months; night sweats for two weeks at time of hemorrhage. Temperature while in hospital did not go above 99.8 Phys. exam. —W. D. and N. Somewhat pale; physical examination negative except for signs of left pleural effusion. Pulse averaged between 90 and 100, and respirations 25. Blood: whites — 9,000. *Feb.* 14, *chest tapped, fluid:* amount 48 oz., straw colored, alkaline, alb. 5%, sp. gr. 1,023, sed.: differential count impossible; cells almost all necrotic; clumps of necrotic cells and a considerable number of necrotic lymphocytes and polynuclear leucocytes. Diagnosis from fluid: secondary tuberculous pleurisy. On the 17th signs of a hydropneumothorax were present. On the 19th tubercle bacilli found in sputum. Clinical diagnosis: pulmonary tuberculosis; hydropneumothorax.

CASE 24. — C. C., twenty-three, s., Armenian, barber. April 4, 1903. F. H. negative. Habits good. P. H. "Pneumonia" five weeks ago lasting two weeks. Pres. ill. — Has gained strength since the "pneumonia," no pain but heavy feeling in right chest which has steadily increased, with increasing dyspnea and sense of epigastric fullness; occasionally dry cough. Phys. exam. — W. D. and N. Cardiac displacement to the left; physical examination otherwise unimportant except for a marked right pleuritic effusion. Temperature normal throughout stay in hospital. Blood: whites — 12,400. *April* 4, *chest tapped, fluid:* amount 67 oz., straw colored, alkaline, alb. 5.6%, sp. gr. 1,023; sed.: entirely broken down leucocytes, most of them containing fat drops; cells are so necrotic that varieties cannot be distinguished; occasional red blood corpuscle. Pig inoculated; autopsied May 14, 1903; pig tuberculous. Tubercle bacilli demon-

strated. Cultures: no growth. Diagnosis from fluid: secondary tuberculous pleurisy. April 6, tubercle bacilli found in sputum. Discharged relieved April 10. Clinical diagnosis: phthisis pulmonalis; pleurisy with effusion.

Case 25. — M. K., forty-eight, m., English, painter. July 24, 1903. F. H. tuberculous. Habits good. P. H. cough and night sweats for short time six months before entrance. Pres. ill. — For three months pains principally in left chest on deep inspiration; slight cough, with whitish expectoration; loss of flesh and anorexia. Phys. exam. — W. D. and fairly W. N. Heart: moderate displacement to the right. Lungs: left pleural effusion; signs of left apical phthisis. Physical examination otherwise negative. Temperature averaged between 100 and 102, pulse between 90 and 100, respirations 25. Blood: whites — 20,700. *July 25, chest tapped, fluid:* amount 34 oz., orange yellow, considerable coagulum, alb. 4%, sp. gr. 1,020; sed.: count of 250 cells, lymphocytes 95.6%, polynuclears 3.2%, endothelium 1.2%; numerous red corpuscles. Cultures: no growth. Pig inoculated; autopsied Aug. 24: no tubercular lesions found. Diagnosis from fluid: primary tuberculous pleurisy. July 29. Sputum: tubercle bacilli found. Condition remained the same; discharged relieved Aug. 4. Clinical diagnosis: pulmonary tuberculosis; pleurisy with exudation.

Case 26. — B., thirty, m., teamster. Jan. 21, 1903. F. H. negative. Habits: alcohol in excess. P. H. doubtful specific disease. Pres. ill. — Slight cough with expectoration; no other symptoms since latter part of last winter. Last July strained himself lifting heavy object, and immediately had fit of coughing, during which he raised about a pint of blood. He kept at work, however, but the cough has increased since that time. Slight white expectoration, but no hemoptysis. Has had night sweats. Since November cough has increased, and has had extreme dyspnea while lying on left side. Has not worked since Thanksgiving. Cough and dyspnea prominent symptoms at entrance. Phys. exam. — Maximum temperature 100 F., below that most of the time. Signs of hydropneumothorax right chest, namely, swashing, shifting dullness and tympany. Left lung negative, except for fine rales at base. Heart displaced to left. Blood: 7,600 whites. Sputum, no tubercle bacilli found. Jan. 25 was discharged, with symptoms relieved and with signs of hydropneumothorax persisting. *Was tapped on Jan. 22. Fluid:* 46 oz., straw colored, sp. gr. 1,022, alb. 2%. Most of cells necrotic. Neutrophiles seemed to predominate, but there was a large percentage of lymphocytes. On account of the ragged and broken up condition of cells differential count very difficult. Examination for tubercle bacilli negative. June 18, 1903, re-entry. Feeling well up to two weeks ago, since when there has been increased splashing in chest. For three weeks has had slight hoarseness and cough, no night sweats or dyspnea. Patient states he has gained 12 pounds since last visit to hospital. Phys. exam. — W. D. and N. Good color. Heart negative. Lungs: signs of right hydropneumothorax; left lung negative; examination otherwise negative. Temperature normal. Pulse 60 to 65; respirations 20 to 25. Blood: whites — 12,900. *June 19, chest tapped, fluid:* amount 55 oz., very turbid, yellow, white sediment, sp. gr. 1,023; sediment consists almost entirely of necrotic cells, lymphocytes and polynuclears. Differential not possible. Cultures: no growth. Pig inoculated; autopsied July 27, 1903; tuberculous. Tubercle bacilli demonstrated. Diagnosis from fluid: secondary tuberculous pleurisy. May 21 discharged relieved. Sputum: tubercle bacilli present. Clinical diagnosis: hydropneumothorax; pulmonary tuberculosis.

Case 27. — G. S., nineteen, s., German, barber. March 14, 1904. F. H. and P. H. negative. Habits good. Pres. ill. — For one month cough with white sputum, pain in left chest, gradual decrease of pain with onset of dyspnea which has gradually increased. Orthopnea and anorexia. Phys. exam. — W. D. and fairly W. N.; pale. Heart: slight displacement to right. Lungs: left pleuritic effusion; examination otherwise negative. Temperature below 99.5 except after tuberculin test when it rose to 103.4; pulse averaged 90 except after tuberculin test when it rose to 125; respirations between 20 and 25 except after tuberculin test when it rose to 34. Blood: whites — 5,200. *March 15, chest tapped, fluid:* amount 37 oz., straw colored, very slight coagulum, sp. gr. 1,023; sed., considerable amount, lymphocytes 76.8%, polynuclears 7.2%, endothelium 14.8%, large mononuclears 1.2%; marked number of red corpuscles, many endothelial plaques. Cultures: no growth. Pig inoculated; autopsied, May 5, 1904, negative. Inoscopy: not sufficient clot. Diagnosis from fluid: primary tuberculous pleurisy. March 31, there were signs of abdominal effusion and the patient was transferred for operation for tubercular peritonitis. Operation showed the peritoneum studded with tubercles. Clinical diagnosis: tubercular pleurisy and peritonitis.

Case 28. — W. L. H., twenty-six, s., American, student. Sept. 30, 1903. F. H. and P. H. negative. P. H. negative except hemoptysis two years ago. Sputum; tubercle bacilli found. Remained in Colorado for a year; hemoptysis again one year ago. Six months later pleurisy with sudden onset, chilly, temperature 102 to 103, rapid pulse, dyspnea; on about the seventh day effusion developed and *was tapped, fluid:* amount 1,500 cc., straw colored, slightly turbid, considerable coagulum, alb. 2%, sp. gr. 1,019; sed.: cells necrotic but lymphocytes predominate of the cells that are recognizable. Inoscopy: tubercle bacilli found. Pig inoculated, autopsied Oct. 29, 1903, negative. Diagnosis from fluid; secondary tuberculous pleurisy. Clinical diagnosis: pulmonary tuberculosis; acute tuberculous pleurisy.

Case 29.—T. McG., twenty-five, s., Irish, tube-works. April 22, 1903. F. H. and P. H. negative. Habits good. Pres. ill. — Pain in lower left chest for two weeks, decreasing in severity; dyspnea for one week increasing. Malaise and anorexia. Phys. exam. — W. D. and muscular; face flushed. Heart displaced to right. Physical examination, except for marked pleural effusion, negative. Temperature averaged normal; pulse averaged 70 to 90; respirations 20. *April 23, chest tapped, fluid:* amount 50 oz., bloody, alkaline, alb. 4½%, sp. gr. 1,021: sed.: lymphocytes 93%, polynuclears 5%, endothelium 1%; large mononuclears 1%. Cultures: no growth. Pig inoculated; died May 8; autopsy negative. Diagnosis from fluid: primary tuberculous pleurisy. Discharged much relieved May 1. Clinical diagnosis: pleurisy with exudation.

Case 30.—D. P., eighteen, s., Italian, mill-hand. Jan. 29, 1904. F. H. and P. H. negative. Habits good. Pres. ill.— For two weeks pain in right chest, gradually increasing dyspnea, slight cough. Phys. exam. — W. D. and N. Heart displaced to left. Lungs: large right-sided effusion. Downward displacement of liver; examination otherwise negative. Temperature: considerable oscillation between 99 and 102 on the average. Pulse averaged 100; respirations between 25 and 30. Blood: whites — 9,000. *Jan. 31, chest tapped, fluid:* amount two pints, orange yellow, considerable coagulum, alb. 2½%, sp. gr. 1,020; sed.: count of 550 cells, lymphocytes 98%, polynuclears 1%,

endothelium 1%; red corpuscles fairly numerous. Cultures: no growth. Inoscopy: negative. Pig inoculated; autopsied March 7, negative. Diagnosis from fluid: primary tuberculous pleurisy. Sputum: no tubercle or influenza bacilli found, several examinations. Gradual improvement; March 16 felt perfectly well, discharged much relieved. Clinical diagnosis: pleurisy with effusion.

CASE 31. — A. C., twenty-two, Italian, laborer. April 15, 1903. F. H. negative. P. H. pneumonia five years ago. Habits good. Pres. ill. — For four weeks pain in left hypochondrium increased by deep inspiration, occasional cough. For two weeks slight chills. Phys. exam. — W. D. and N. Heart displaced to right. Lungs: signs of left pleural effusion; examination otherwise negative. Temperature: considerable daily oscillation between 102 and 104, gradually coming down in the course of two weeks. Pulse averaged 90; respirations 25. Blood: whites — 10,500; Widal negative. Sputum: no tubercle bacilli found. *April* 17, *chest tapped, fluid:* amount 1,200 cc., straw colored, considerable coagulum, alkaline, alb. 3%, sp. gr. 1,021; sed.: lymphocytes 99%, endothelium 1%. Cultures: no growth. Pig inoculated; autopsied May 20, negative. Diagnosis from fluid: primary tuberculous pleurisy. May 2 discharged much relieved. Clinical diagnosis: pleurisy with effusion.

CASE 32.— M. S., thirty-nine, s., American, electrical supply factory. April 22, 1903. F. H. and P. H. negative. Habits good. Pres. ill.— For two weeks pain in epigastrium, gradually increasing in severity. No stomach symptoms. Dyspnea on exertion. For two or three days slight cough without sputum; chilly sensations for two weeks. Phys. exam.— W. D. and N. Heart displaced to right. Lungs: left pleural effusion. Examination otherwise negative. Temperature only once over 101, averaged between normal and 100; pulse averaged 100; respirations averaged 30. Blood: whites — 6,900. *April* 22, *chest tapped, fluid:* amount 1,920 cc., straw colored, very slight coagulum, alkaline, alb. 4.2%, sp. gr. 1,021; sed.: almost entirely lymphocytes of small variety; occasional red corpuscle. (House officer.) *April* 27, *chest tapped, fluid:* amount 1,560 cc., straw colored, very slight coagulum, alb. 3%, sp. gr. 1,023; sed.: count of 300 cells, lymphocytes 98%, polynuclears 1%, endothelium 1%; moderate number of red corpuscles. Cultures: no growth. Pig inoculated; autopsy negative. Diagnosis from fluid: primary tuberculous pleurisy. Improved rapidly; April 29 discharged well. Clinical diagnosis: pleurisy with effusion.

CASE 33.—R. D. P., thirty-one, s., Italian, baker. May 10, 1903. F. H. and P. H. negative. Habits good. Pres. ill. — For two weeks pain in right chest, dyspnea, feverishness and moderate cough; these symptoms persisted to time of entrance. Phys. exam.— W. D. and N. Good color. Heart slightly displaced to left. Lungs: right pleural effusion; examination otherwise negative. Temperature fluctuated between 100 and 102; pulse averaged 100, respirations 25 to 30. Blood: whites — 14,200. *May* 10, *chest tapped, fluid:* amount four quarts, straw colored, very slight coagulum, alkaline, alb. 4%, sp. gr. 1,022; sed.: count of 300 cells, lymphocytes 99%, polynuclears 1%. Cultures: no growth. Pig inoculated; autopsy negative. Diagnosis from fluid: primary tuberculous pleurisy. May 14, discharged much relieved. Clinical diagnosis: pleurisy with exudation. Thickened pleura.

CASE 34. — A. F., twenty, s., Italian, bookbinder, March 7,1904. (O. P. D.) F. H. negative. P. H. attacks of "grip" last four or five winters. Pres. ill. — "Grip" two weeks ago which left him with cough; no sputum; dyspnea on exertion. Phys. exam. — Temperature 99.8. Left pleural effusion. *March* 8, *chest tapped, fluid:* amount ½ pint, straw colored, slight coagulum, alb. 3%, sp. gr. 1,022; sed.: moderate amount, lymphocytes 80½%, polynuclears 17%, endothelium 1%, large mononuclears 1½%; moderate number of red corpuscles. No bacteria seen. Inoscopy: not sufficient coagulation. Pig inoculated; autopsied May 5, 1904; negative. March 12, 1904, entered hospital. Phys. exam.— W. D. and N. Slight cardiac displacement to right. Lungs: left pleural effusion; examination otherwise negative. Temperature did not go above 99.8; pulse averaged 85, respirations 20. Blood: whites — 9,400. *March* 13, *chest tapped, fluid:* amount not stated, straw colored, alkaline, alb. 6½%, sp. gr. 1,022; sed.: moderate amount, lymphocytes 91%, polynuclears 6%, endothelium 2%, large mononuclears 1%. Culture: no growth. Inoscopy: negative. Pig inoculated; autopsied May 18; negative. Diagnosis from fluid: primary tuberculous pleurisy. Patient improved. May 25, no symptoms; discharged well. Clinical diagnosis: pleurisy with effusion.

(To be continued.)

Clinical Department.

EARACHE, OR CASES OF EARLY INVOLVEMENT OF THE MIDDLE EAR, USUALLY NEGLECTED.

BY FRANCIS P. EMERSON, M.D., BOSTON,
Aural Surgeon, Boston Dispensary.

How familiar the remark,— "Doctor, Margaret had a little earache last night, but I dropped in some sweet oil and it all went away." Usually the anxiety of both mother and doctor ends here, although earache usually means a catarrhal inflammatory process, which may be limited to the eustachian tube or which may involve the middle ear or mastoid — not a neuralgia but an inflammatory process, as evidenced by an injected area along the manubrium and sometimes over Schrapnel's membrane. Inspection will show these changes in the drum, although the pain may not have been of long duration or at all severe. The middle ear then has been invaded, and such a catarrhal process must leave results, either in the immediate effects of an acute attack, or in laying the foundation for a chronic middle ear. Such conditions must in time be attended by more or less deafness. If these children have not passed the age of the infectious diseases, the danger of a suppurative process will be very great. Many of these cases furnish the backward children in school, who are not dull but who do not hear.

At the hospital clinics every year we examine many such cases, sent by teachers who have been instructed along these lines, and almost invariably find local causes which have impaired the hearing. With the improvement of hearing, the pupil is as bright as others.

So much has been written about adenoids that physicians even are apt to expect to find typical cases with mouth breathing, deficient nutrition, active naso-pharyngitis and frog face. These

conditions being absent, the conclusion is reached that there is no local process requiring attention.

These catarrhal ears, however, may occur frequently in children living under the best surroundings. Such children may be well nourished, have no evidence of catarrh, nor even be mouth breathers. In fact, if such middle ears be due to adenoid tissue, this may only be around the eustachian tubes and hence not offer any mechanical obstruction to breathing. Such glandular tissue often persists into adult life, especially if once infected, and usually exerts a baneful influence upon the hearing. When such active organisms as the bacilli of influenza cause the infection, the patient is liable to a rapid involvement of the middle ear and the mastoid.

In children, certain reflex symptoms resulting from dentition, dental caries or pressure from cerumen may cause an otalgia, but inspection does not show inflammatory changes in the drum. One is an inflammatory process; the other a neuralgia. The following cases are cited because they are almost uniformly neglected. These cases lay the foundation for an innumerable train of symptoms in later life. The earache, usually coming on at night, is repeated one or many times at variable intervals until finally the child awakens with a more active attack, which is followed by a serous or suppurative middle ear.

These four cases are typical of what the general practitioner, as well as the specialist, is constantly seeing. They occurred in well-to-do American families living under good hygienic surroundings. These children would have been handicapped, however, unless promptly treated, not alone in impaired or destroyed hearing, but because at the growing period of their lives, they would have been subject to bronchitis, head colds, and poor digestion during each successive winter. Such acute attacks, however short, seriously interrupt school life, but what is of more importance, they impair the physical condition, especially in chest development. We have learned that these attacks are usually due to pathological conditions of the naso-pharynx, and that a child whose upper respiratory tract is normal rarely suffers from bronchitis or head colds. Abnormal conditions in the naso-pharynx as a cause of earache are, however, usually neglected until serious damage has resulted to the middle ear.

Case I. S. V., twenty months. Only child of American parents. He is well nourished, breathes easily with his mouth closed, always well except for several mild head colds. These colds were always accompanied by slight pain in his left ear. The parents were warned that there was trouble in his throat needing attention. After two attacks, the third occurred while on a visit in Chicago, and resulted in perforation of the left drum. On his return, a large central adenoid was removed with glandular tissue especially marked about the left tube. Subsequent colds were unaccompanied by earache.

Case II. R. H., four years. Only child of American parents. Well nourished, accustomed to a daily, cool bath, slept in a cool room, was much out of doors, and breathed with the mouth closed. She was subject to frequent head colds which were always accompanied by a slight earache. She was seen in four or five attacks and perforation of the drum was avoided with difficulty. Each time, operation was urged. In the fall of 1903, the vault was made clean and adenoid tissue, especially about the left tube, removed. She has had but few colds since and no earache.

Case III. F. E. B., six years. Large and well nourished. American parents. Seldom sick but from head colds which were always accompanied by earache, which his mother relieved by a few drops of warm oil. His parents were told of the probable outcome, especially as he had large tonsils as well as adenoids. He was not a mouth breather. Within three months, a more severe attack resulted in an acute serous ear and left facial paralysis. The paralysis gradually cleared up. Later his adenoids and tonsils were removed, as well as the glandular tissue in Rosenmüller's fossæ. Subsequent attacks of naso-pharyngitis did not involve the ear.

Case IV. A. F. F., five years. American parents. When first seen, he had a temperature of 103° for which his physician could not account. Examination of the ears showed both bulging, although he had not complained of pain. His previous history was that for two winters he had been kept in doors by attacks of bronchitis or broncho-pneumonia, while in the summer he was well and strong. Later his adenoids were removed, and for two winters now he has led an active out-of-door life. He has had one attack of earache, caused by too vigorous blowing of the nose during a slight cold.

Reports of Societies.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

TWENTY-FIRST ANNUAL MEETING HELD AT PHILADELPHIA, JUNE 2–4, 1904.

(Concluded from No. 12, p. 331.)

Dr. Delancey Rochester (Buffalo): It seems to me that in Dr. Cobb's paper there is just one thing of value, and that is, his statement in regard to the swine being infected from cows' milk. The swine is very closely, physiologically, associated with the human being; and the fact that the swine can be infected from cows' milk seems to me to prove absolutely that other exported animals can also be infected with the cows' milk; and, along with Dr. Jacobi, I agree with him most thoroughly that the whole weight of negative cases proves nothing, and we have distinct evidence that milk can be a factor. Dr. Cobb's question is, "Is Milk a Factor?" Nobody thinks that it is the great factor; but it is possible, I think, and proven beyond dispute that it is a factor in the spread of tuberculosis.

Dr. Robert H. Babcock (Chicago): I understood the essayist to claim that the transmission of bovine tuberculosis in the herd was from the feed box. That, undoubtedly, is so in perhaps a large percentage of cases; but that the transmission in a herd is through the milk, is also well established. There is a well-known herd near Chicago kept by a man named Gerler who supplies milk to the city; his herd is tested for tuberculosis every year, and in one year the herd of one hundred and fifteen cows was tested with tuberculin and found absolutely free; not a single creature reacted. The next year a number of young cattle which had been calves the year before, were raised right on his own farm, were tested with tuberculin and a number of them reacted. Unable to explain

this fact, Mr. Gerler made inquiries, and found that those particular calves had been fed with milk obtained from a neighboring dairy; that the milk supplied by his own cows was not sufficient for his calves, and that the head herdsman had obtained milk from a neighboring dairy and fed it to those particular calves, and it was those particular calves that reacted next year to tuberculin.

DR. EDWARD R. BALDWIN (Saranac Lake, N. Y.): Professor Behring does not hold, without qualification, that all human infection comes from the bovine source; but he does think that the bovine is a very prominent and very frequent source of human infection; but he also admits, and he thinks it very probable, that the bovine milk becomes contaminated from *human* sources while the infant is being fed during the first weeks of life. This point has not been sufficiently brought out; and while Professor Behring has, himself, a great many opponents, I think it is only fair that we should fully understand his position; because a very few years may change our ideas fundamentally as to the time of infection from tuberculosis. Whether we change our ideas as to the origin of the infection or not remains less of a question to my mind. It does seem that it is proven beyond peradventure that bovine tuberculosis may be transferred to the human being; we do not need to go outside of our own country to have had proof of that before the German Commission undertook their work. Prof. Theobald Smith has had several cultures which were obtained from different children, and one out of three of these cultures (obtained from the mesenteric glands) proved to be highly virulent for all members of the bovine species, as I have personal reason to know. It produces typical bovine tuberculosis in the most virulent form. This culture was obtained from a child.

No proof is more direct, because in the majority of cases, as we know, human bacilli are unable to affect cattle; this particular culture infects cattle without any difficulty whatsoever. Professor Smith has no doubt in his own mind from this peculiarity of the culture and from the bacteriological point of view, that it was originally a bovine bacillus which was implanted in this child. The recent report of the English commission gives the unqualified statement that they think that bovine tuberculosis is transmissible to human beings; so that Professor Koch, whose statement at the time was somewhat unguarded, seems disproven. It was not held by him that it was absolutely *impossible* to infect the human being from the cow, yet his position has been to defend that view. On the other hand, Professor Koch has been proven wrong by his later investigations; so that the position to-day is one rather not as to where the infection of human tuberculosis originated, but as to the time of its infection, the time when the bacillus is implanted; and the most important thing, it seems to me, this association ought to have in mind is to adjust our ideas to the possibility of a very early infantile infection as Professor Behring holds. I do not say that the evidence is unquestionable; Professor Behring himself has the opposition of almost all the pediatrists; he has the opposition of almost all the prominent men who have given very much study to this question. On the other hand, his experimental work is worthy of every investigation; his authority in other things is unquestioned, and Professor Behring's present position requires the careful investigation of every member of this association.

DR. S. E. SOLLY of Colorado Springs read a paper on "Climatology as a Study in Medical Schools."

DR. N. S. DAVIS, JR. (Chicago): The difficulty in introducing climatology as a required part of the curriculum in medical schools has been referred to; it is want of time. There is just as much demand, just as much need of a full course in dietetics, a full course in electrotherapeutics and a variety of other subjects, as there is of climatology; and yet, as special topics, these have to be neglected or brought in incidentally. To-day all of the good medical schools are crowding five years' work into four. The students are overwhelmed with work and the curriculum is overcrowded. Under these circumstances it is absolutely impossible to require attendance upon any systematic courses in these subjects; furthermore, the methods of teaching have changed very considerably. Pharmacology is to-day taught largely as a laboratory and comparatively little as a lecture course; the result, I think, is that few lectures are given on general subjects like climatology and dietetics, except as they are given incidentally in connection with clinics and in connection with didactic teaching in practice.

As regards my own custom, and that of Northwestern University which I represent, I devote almost without exception at least two lectures a year, sometimes three, to the subject of climatology; but usually I have a tubercular patient before me as an excuse for giving the lectures. In two lectures I can cover the fundamental principles of climatology and point out the combination of conditions which characterize various typical climates; then I repeat the indications for choice of climate, not only I, but my colleagues, who are talking about climatology as applied to individual cases and diseases, do this. In this way the subject is taught.

Dr. Solly has referred to the fact that so many patients go for climatic treatment to climates that they ought not to go to, through ignorance. That is by no means always the fault of the physician who formerly treated them; indeed, I think very frequently, perhaps, in a large proportion of cases it is not his fault. Patients very frequently insist on going where they are not advised to go, or they make their own choice, or, as very often happens, they do not go when climatic treatment is ordered for them, but put off such treatment until the very last, all of which we know they should not do, but these are patients we cannot govern.

DR. A. JACOBI (New York): I simply want to draw the conclusion of what Dr. Edson has been saying. The science of therapeutics is an applied science. It is applied in this: that whoever has not learned any physics or meteorology and physiology cannot understand it — no one, no matter how big his laboratory is, nor how many books he has been reading; therefore the preparatory knowledge should be conveyed,— physics and physiology, — and if that be so, it is not necessary to spend very many lectures in a didactic course on climato-therapeutics.

DR. CHARLES L. MINOR (Asheville, N. C.) read a paper: "The Use of the Fluoroscope as an Aid in the Physical Diagnosis of Pulmonary Tuberculosis; Its Limitations and Its Advantages, Based on Three Years' Experience."

DR. A. C. KLEBS of Chicago read a paper entitled "Recent American Contributions to the Methods of Prevention and Treatment of Pulmonary Tuberculosis.

"1. Anti-tuberculosis Societies and Their Work.
"2. Exposition in Baltimore.
"3. Facilities for Out-door Treatment.
"4. New Sanatoria."

Dr. Klebs looks at tuberculosis as a house and family problem, and believes that the disease, although undoubtedly communicable, can develop to disabling proportions only when concomitant, chiefly unsanitary, conditions become active. The work of the Department of Health of New York was reviewed, and un-

qualified praise given to Dr. Biggs for his labors to secure registration and subsequent inspection and treatment. The work of the Maryland Tuberculosis Commission, the Pennsylvania Society for the Prevention of Tuberculosis, and the Boston Association for the Control and Relief of Tuberculosis was reviewed.

The committee on the prevention of tuberculosis of the Charity Organization Society of New York has issued a handbook on the prevention of the disease, and its work is highly effective. The Chicago tuberculosis committee, working under the auspices of the Visiting Nurses Association and with the Bureau of Charities, has several offices in crowded districts, where physicians who have volunteered for the service take charge of consumptives and their families in their homes. They improve domestic hygiene. The Phipps Institute was mentioned, and the organization of the National Association for the Study and Prevention of tuberculosis. Outdoor sleeping was probably first systematically practiced as a cure in the dry atmosphere of the western plains and mountains. The various shacks and tents were described. The growth of sanatoria was reviewed, and the very great share in these achievements which belongs to the activity of the American Climatological Association.

Dr. Otis (Boston): Dr. Klebs has indeed presented a very hopeful outlook of what has been done during the last year in the prevention of tuberculosis, especially in Chicago. Last year the legislature in Massachusetts appropriated $150,000 for the enlargement of Rutland Sanatorium. The addition is now in process of construction, and soon the institution will accommodate 400 patients of the incipient type. A bill to appropriate $150,000 for the hospital for advanced consumptives, to be built within ten miles of Boston, failed to pass. The city of Boston itself passed an appropriation for $150,000 for the same purpose, but the mayor withheld his approval for the alleged reason that the sum is inadequate for the purpose. The Boston Association for the Relief and Control of Tuberculosis has been very active during the last winter, which has been its first winter's work — in two directions principally: In the direction of relief of tuberculous patients at their homes. Food is furnished, if necessary, and sputum cups, and so on. An educational propaganda has been carried on, something, I think, like seventy lectures have been given by physicians before all sorts of audiences; the masters of the schools have been most enthusiastic in asking that lectures should be given to their scholars, and that has been one of the very encouraging portions of the work of this association. Thirdly, the association has been continually advocating for the construction of a municipal hospital to care for advanced cases among the poor. The accommodations for the hopeless consumptives are all very inadequate; therefore the actions of our Board of Health are restrained on account of having no accommodation.

Dr. Babcock: I must enter a protest against Dr. Klebs' very modest report given of the work done by the Association for the Prevention of Tuberculosis in Chicago. This association owes its inception and its success solely to Dr. Klebs. Were it not for Dr. Klebs' efforts in the city of Chicago, there would be practically nothing done to-day along this line; and I feel that it is nothing more than just that the modesty of this man should be recognized and his efforts in that direction in Chicago duly appreciated.

Dr. Thomas J. Mays (Philadelphia) read a paper, "Human Slavery as a Prevention of Pulmonary Consumption." See Journal, June 9, 1904.

Dr. F. I. Knight (Boston) read a paper entitled "What shall We Do with Patients having Pulmonary Tuberculosis?" See Journal, Sept. 8, 1904.

Dr. Robert H. Babcock (Chicago) read a paper on "Some Cases of Pus Infection Simulating Pulmonary Tuberculosis." The five cases cited represent a rather frequent class in which the differential diagnosis is difficult, and they illustrate the close relationship existing between disease of the lungs and derangements of circulation within the abdominal cavity. If, in endeavoring to pass judgment on an individual's lungs, the physician confines his attention to these organs, he will find his field of view too limited to permit of a really intelligent opinion. The first case cited had been pronounced tuberculous. The patient had been ill with cough and high fever with emaciation for two months. Nowhere was there pronounced dullness, yet both lungs were defective in resonance. An examination of the abdomen and a clearer history led the author to believe that it was not tuberculosis, but septicemia originating in a pelvic peritonitis with purulent and circumscribed exudate, and that the indefinite lung findings were due to some pulmonary change, resulting from the patient's infection following abortion, with feeble heart action. The diagnosis was confirmed by a surgeon who operated and by an a autopsy later. Four other cases were cited. Dr. Babcock advocated a leucocyte count in doubtful cases. In early tuberculosis the leucocytes are likely to be either not increased or actually diminished, whereas in cases of pus infection there is leucocytosis, although this may be slight. The tuberculin test was also advocated.

Dr. S. G. Bonney (Denver) read a paper on "The Principles and Management of Pulmonary Tuberculosis." See Journal, Sept. 15, 1904.

Dr. Carroll E. Edson and Dr. W. H. Bergtold of Denver read an account of the Agnes Memorial Sanatorium for the Treatment of Tuberculosis, built by Mr. L. C. Phipps at Denver, Colo. It is a closed sanatorium for the open air treatment of persons of small means. It occupies a plot of 40 acres, seven miles east of Denver, and there are 120 acres that may later be added. Access is by electric cars. There is an artesian well 750 feet deep on the grounds. The present capacity is for 80 patients, with a maximum, eventually, of 150. There are at present five buildings; they are two-story pavilions, face W.S.W., are of brick, covered with cement, and roofed with tiles in the Spanish mission style, and are all connected with open cloisters with subways below. The "direct-indirect" system of heating, so-called, is employed. There are verandas with canvas partitions that are fastened outside at the position of the walls between each room, so that by drawing out to the column between the arches, the veranda is divided into private porches, 9 x 12, one for each room. The beds may be rolled through the wide door upon the veranda, and patients are to sleep out of doors as much as possible. The screens prevent strong currents of air down the veranda, and at the ends are glass-enclosed corner rooms eleven feet square. The sanatorium is arranged for use all the year round. In Colorado, shade is desirable for some patients at all times, and for all during the mid-day in summer. A clinical laboratory with every appliance for scientific clinical work is provided. The steam plant, dynamos, fire pumps, refrigerating machine and incinerating furnace are of the most approved type. All laundry material is sterilized by steam before delivery to the laundry room proper. Messrs. Gove and Walsh of Denver are the architects. The report of the Medical Board, covering a large number of specifications on which the plans were drawn, was appended. The paper was illustrated with lantern slides.

DR. THOMAS DARLINGTON, Commissioner of Health of the city of New York, described the "Work of the Tuberculosis Clinic of the Department of Health of New York." It was opened March 1, 1904, and is located in the Health Department building at Sixth Avenue and Fifty-fifth Street. It is constructed in the most approved manner of hospital construction. The floors are tiled, the corners of the rooms rounded and the furniture is made of plate glass and enameled iron. It is intended that when a patient is discharged from a general hospital, if tuberculous, he will be given a card to this clinic, where he will be examined and treated. Patients' homes are also visited. If persons who have been so referred do not report, they are looked up, and all absentees are investigated. At the clinic, patients are supplied with sputum boxes, gauze, and printed matter in his own language. He is instructed in hygienic measures and taught breathing exercises. The examinations are thorough and include the x-ray. Patients with abnormal temperature, or those too sick to walk are sent to Riverside Sanitorium, on North Brothers Island, which belongs to the department, or to Seton, St. Joseph's or Lincoln hospitals. It is the intention of the department to supply milk and eggs when patients cannot procure them. The number of visits averages thirty-six daily. The Russian Jews number nearly half. Nine hundred and two specimens of sputum were examined in the first three months. Four hundred and seventy-one cases were under observation June 1, 1904.

DR. JOHN WINTERS BRANNAN (New York City) read a paper on "The Home Treatment of Tuberculosis by Means of Hospital Dispensaries."

DR. JOHN MADISON TAYLOR (Philadelphia) gave an abstract of his paper, "Remarks on the Treatment of Respiratory and Circulatory Disturbances by Passive and Active Movements."

DR. BABCOCK: I have seen very brilliant results accomplished in many cases of chronic myocarditis where there was no mechanical obstruction in the way of valvular disease, but merely the cardiac inadequacy resulting from the loss of proper equilibrium in the circulation, and from the degenerative changes in the heart muscle. I have seen men who were suffering from dyspnea and other manifestations of circulatory disturbances, restored to what they considered as good health as before they had any premonition of impending disaster. I think it is a measure that we should all consider; it is along the line of the means provided by nature, and that, so far as we can, we should endeavor to prescribe therapeutic measures which are not medicinal.

DR. JACOBI: There is a good deal in the Nauheim baths, if only on account of the large amount of carbonic acid contained in them. The carbonic acid you can have in other mineral springs; you have them, for instance, in Pyrmont, Schwalbach, in Spa, Belgium, and so on. I remember to have seen in a little book of that famous old Scotchman, Dr. Keith, the following remark: That he treats angina pectoris very frequently with massage of the intercostal nerves. The massage is a local one, and he asserts that very frequently he relieves or remedies attacks of angina pectoris by simply massaging the fifth and sixth intercostal nerve persistently, but gently, for some time. All this speaks for the value of massage when done gently and properly. That is so true that in New York City, as far as I am informed, more harm is done by so-called massage than good. There are hundreds of people, male and female, that make a living out of causing new attacks of pleurisy, new attacks of peritonitis and perimetritis, and so on. They are very active and, from a commercial point of view, they are great aids to the active practitioner who has to see their cases afterward. I have seen a great many cases of peritonitis that were the result of violent "massage"; but this experience of Dr. Keith's is a very interesting one, and it has appeared to be of some service in quite a number of cases of angina.

DR. BABCOCK: I have had considerable experience in this line of treatment, and although I cannot formulate any very, to me, trustworthy notions concerning the method or the relative value of the effects produced by the resistance exercises and the baths, I am satisfied there are some cases which are benefited by the one and some which are benefited by the other. As a rule, I generally combine them in any given case. I am not at all in sympathy, as perhaps you know, with Beslie Thorn, Schott, and some others who advocate the baths in cases of very seriously destroyed compensation. I am sure, however, that carefully given resistance exercises will accomplish very much in cases of very grave cardiac inadequacy. I am sure also, that resistance exercises are a very material aid in relieving angina pectoris, not so much during the attack perhaps (as I have had no experience in that), but given between attacks they relieve patients from frequency and severity of attacks. Both therapeutic measures are well worth careful study by every man who is interested in therapeutics of circulatory derangements, and I am sure that if properly given they will afford results which, in many instances, are far superior to the drug treatment of these diseases.

DR. BEVERLEY ROBINSON of New York City read a paper on "Some Unsettled and Important Problems in the Treatment of Acute Lobar Pneumonia." Dr. Robinson believes that with the first symptom of chill, fever, pain in the side, cough and expectoration, beechwood creosote should be vaporized more or less continually in the patient's room; this often will prevent pneumonia, as it is an anti-catarrhal agent of great value, and is eliminated through the bronchial mucous membrane. The sputa must be rigidly and systematically disinfected, and after recovery or death, fumigation, cleansing and ventilation should be practiced. If the patient is seen in the beginning of the attack, it is best in case of inadequate facilities for treatment, to transport the patient to a hospital. On the third, fourth or fifth day, such a move is often questionable. A private room should, if possible, be secured, and the patient isolated. Morphia in the beginning is to be occasionally used when pain in the side is present. Dr. Robinson does not believe that Dover's powder has any good effect on the march of the pneumonic process, as it is prone to lock up secretions which are too much interfered with by the disease itself. In this Dr. Robinson agrees with Professor Gairdner and disagrees with Sir Samuel Wilks. The author does not believe in the cold bath, cold pack, or even cold applications locally in the treatment of pneumonia. Occasionally he permits cold sponging if the fever is high, but, as a rule, he prefers tepid or warm water with alcohol, believing that the nervous shock caused by the toxin is better allayed with slight or moderate heat than with cold. He opposes all large doses of quinine to abate pneumonia or to act as a pronounced antipyretic. A solution of ammonia is valuable to keep the blood fluid. Alcohol is used as a stimulant. Large doses of digitalis are prejudicial in all stages. Nitroglycerine is useful when the heart weakens. Strychnine has been used too much. A good preparation of cocoa is of great value. Hypodermoclysis in moderation and oxygen should not be left until too late. Except in profound general toxemia and the beginning of pneumonia, and in specially rugged or full-blooded patients, venesection is not desirable, as

a rule. Absence of leucocytosis in acute lobar pneumonia presages death. Differential counts should be made and regarded. In treatment, harm proceeds almost invariably from ignorance or undue enthusiasm.

Dr. Howard S. Anders of Philadelphia read a paper on the "Pitch of the Normal Pulmonary Valve Sound, and the Practical Significance of Its Changes in Acute Lobar Pneumonia and in Emphysema of the Lungs." Dr. Anders said it was singular that the characteristics of pitch changes are usually unrecognized. They must be based on a comparison with the aortic sounds. After an examination of 470 individuals with this in view, Dr. Anders finds the pulmonic second sounds lower in pitch than the aortic sounds in 77%; in 10% no difference could be detected, and in 13% the pulmonary valve sound was a trifle higher than that of the aortic valves. The persons examined were presumably healthy. Physiologic irritability, nervousness, etc., caused a simultaneous elevation of the pitch. Accentuation or increase in intensity of the pulmonic second sound is more noticeable where the evidences of hypertrophy of the right ventricular myocardium are prominent. Extreme elevation of pitch accompanies those affections associated with excessive obstruction to the flow through the pulmonary capillaries, where the *vis a fronte* predominates. The primary effect of the consolidated lung in lobar pneumonia is to elevate the pitch of the pulmonic valve sound to a degree above that of the aortic sound, corresponding to the amount of increased tension in the pulmonary circulation. Such changes are a sign of impending danger and may be recognized earlier than any diminution in intensity or loudness of the sound. The pitch is also raised in emphysema, bronchitis and winter cough.

Dr. James M. Anders, Philadelphia, read a paper on "Meteorologic Conditions in the Causation of Lobar Pneumonia." He considered the data bearing on the climatic factors as recorded at the United States Weather Bureau for twenty years. The conclusions were: (1) That the seasons exert a marked effect upon the prevalence of lobar pneumonia, the maximum mortality being observed during the winter and spring months. (2) That insular climates probably manifest the greatest rise in pneumonia mortality in winter, while that of continental climates coincides mainly with the spring. (3) That the mortality of the epidemic form of the disease is to a less extent influenced by the seasons, and may occur in the fourth and even third quarter of the year. (4) That an apparently close relationship exists between periods of low temperature and the death-rate from pneumonia. (5) That the mortality rises and falls with the barometric pressure, the maximal pressure being reached during periods of high pressure. (6) That the average velocity of the winds and the death-rate from pneumonia would appear to stand to one another in the relation of cause and effect (a provisional explanation of this fact being found in the controlling influence exerted by the winds upon temperature and barometric pressure, or by the latter upon the winds). (7) The major influence exerted by the seasons, however, is probably not direct, *e. g.*, by a lowering of the bodily resistance due to low temperature, high barometric pressure, direction and velocity of the winds, etc., but indirect, namely, by bringing about that ineffective element in the causation — concentration and increased virulence of the specific poison in consequence of closed doors and windows and lack of free ventilation.

Dr. Phillips: With reference to the prevalence of pneumonia, it has no seasonal preference in tropical climates, but there is no doubt of the effect of something in temperate climates in bringing about its seasonal incidence. What that something is, is very interesting. The meteorological element that coincides most in its movements — in its ups and downs — with the ups and downs of pneumonic deaths, is the temperature. It is impossible, I may say absolutely impossible, at present to express the pneumonia death-rate in temperate climates as a function of the temperature; yet I think that a low temperature has a decided effect, and in a manner that has not been brought out by Dr. Anders. An exposure for a short time to a low temperature does produce in the human body a fall in the temperature of the human body itself. That I know from a series of experiments upon this subject I conducted some six years ago, and reported in the *Monthly Weather Review*.

Let any of you gentlemen that wish to try, go out from an ordinarily comfortable room to, we will say, a temperature of 32° or lower for a couple of hours and then come back. If you have taken the precaution to take your body temperature on leaving, before going out, while out, and after coming back, you will notice two things: you will notice that your temperature falls gradually for some time before equilibrium is reached, and when you return to the house you will find it will be from a half to three quarters or even three hours before your temperature gets back to the point it was before going out. In my experiments the temperature was taken in the mouth, taken under the tongue, and carefully taken. The temperature falls, dependent upon the clothing. I have taken at the same time the temperature between all wears of the clothing. On first going out, after five or ten minutes, all the heat of the clothes arising from the interior house temperature is usually lost; then the thermometer, placed immediately next the skin, begins to show a decline. I have stayed out in my own person until I got so chilled I could not stand it any longer, and the skin temperature was getting lower and lower and lower. It would be interesting to know how long a man could stay out.

Dr. Anders mentioned the relative humidity, but relative humidity does not mean anything of itself, and I wish our climatologists could get that into their heads — that relative humidity is merely a convenient term for expressing the relation between two absolute things: temperature on the one hand, and absolute humidity on the other; and when you say relative humidity is so and so, unless you state the temperature, you have not stated anything that is tangible. The absolute humidity in cold weather is low, decidedly low; at the same time the relative humidity may vary anywhere between 100% and almost 0%. May it not be that during cold weather the excessive evaporation from the mucous membrane and the naso-pharynx places that mucous membrane in a condition susceptible, much more susceptible, to permit infection? We know pretty well that the pneumococcus can be found in healthy throats; a great many of us are carrying it around, just simply awaiting an opportunity for it to get in its work.

Dr. Karl von Ruck of Asheville read a paper entitled "A Classification for Cases of Pulmonary Tuberculosis and Phthisis." This paper was submitted *a propos* of the report which a committee of the association presented at a previous meeting, when it was submitted with requests for opinions on the same. The object was to secure uniformity in classification. He reviewed the classifications of Andral, Bayle, Laennec, Grancher, Penzoldt, Prior, Musser, West, Cornet, Sir James Clark, Stokes, Louis, Meissen, Delafield, Loomis and others. The attempt to classify in a manner in which the anatomical lesions as shown by physical signs are attached to certain clinical phases

of the disease, is probably not applicable to all cases. The attempt to combine the physical phenomena, especially in regard to extent of area, with the clinical aspect of the cases falls because they stand in no necessary relation, either in the prospect for duration of life or in the prospect of a clinical cure.

The distinctive features of Dr. von Ruck's classification are: For chronic tuberculosis, the absence of softening, ulceration or excavation. For initial tuberculosis, that the destructive area is small, giving as yet no physical signs of cavity or having a correspondingly limited amount of expectoration.

For phthisis, that the destructive process has extended to a degree that a small-sized cavity is recognizable, the increase of the ulcerating surface corresponding with an increase in sputum. In this stage the larynx may show a mild degree of involvement. For advanced cavernous phthisis, the presence of a large or of a multiple cavity formation again reflected by a correspondingly larger amount of sputum, and with this stage are also classed all cases which, regardless of the extent of local destructive changes, have grave complications, be they tuberculous or otherwise. The classification is chiefly upon a clinical basis and was fully detailed in the paper.

At the business session the following officers were elected for the ensuing year: President, Dr. W. F. R. Phillips, Weather Bureau, Washington; vice-presidents, Dr. S. G. Bonney of Denver and Dr. S. D. Risley of Philadelphia; secretary and treasurer, Dr. Guy Hinsdale of Hot Springs, Va.; member of the council, Dr. J. C. Wilson of Philadelphia; representative on the executive committee of the Congress of American Physicians and Surgeons, Dr. Frederick I. Knight, Boston. The place of meeting for 1905 was not determined.

Recent Literature.

Manual of Clinical Microscopy and Chemistry, Prepared for the use of Students and Practitioners of Medicine. By DR. HERMANN LENHARTZ, Professor of Medicine and Director of Hospital at Hamburg, etc. Authorized translation from the fourth and last German edition, with notes and additions, by HENRY T. BROOKS, M.D., Professor of Histology and Pathology at the New York Post-Graduate Medical School and Hospital; Member of the New York Academy of Medicine, etc. With 148 illustrations in the text and 9 colored plates. Pages xxxii, 412, octavo. F. A. Davis Company, publishers, Philadelphia, Pa. 1904.

This excellent work, which is a translation of the fourth German edition, represents a series of lectures in an augmented form delivered by Professor Lenhartz before the Leipzig clinic. We are now indebted to Professor Brooks for presenting for the first time the subject-matter in our own language, and for making important additions thereto. While we cannot fully agree with the author and translator on a number of points of detail, the book contains very little that deserves adverse criticism; most of the subjects are well treated and are as exhaustive as a volume of its size will permit. We would, however, call attention to a few points which seem to us important.

We question the advisability of devoting some thirteen pages to the construction and management of the microscope, for the catalogues of the different microscope manufacturers now-a-days deal sufficiently with the construction, and the use of the instrument is best taught in the class-room. The forensic identification of blood-stains (p. 188) is too briefly treated to be of value, and, it seems to us, belongs in works devoted to forensic medicine rather than in a book of this character. A certain amount of confusion exists in regard to the use of nitric acid instead of acetic acid in the heat test for albumin. On page 296 we find the following: "It is, therefore, advisable first to add nitric acid, which is preferable to acetic acid, because the latter, even in slight excess, dissolves small amounts of albumin." In the first place, an excess of either nitric or acetic acids cannot be used in the heat test for albumin because of the formation of acid albumin which is not precipitated by heat; and secondly, nitric acid, when added in small amount to the urine which has already been boiled will dissolve small amounts of albumin, while acetic acid will not dissolve traces of albumin under these circumstances. It is, therefore, far safer to use a weak solution of acetic acid, about 33%, to render the urine sufficiently acid to prevent the precipitation of the earthy phosphates, or to dissolve the precipitate after it has once formed.

Under the heading of Alkaptonuria (p. 308) we find no mention of the marked affinity that alkapton has for oxygen. Upon this fact depends an important test for alkapton by the use of sodium hydroxide. On page 323 the description of the quantitative test for sugar by Fehling's method is too brief for the inexperienced person to follow. We would suggest greater detail and more explicit directions of how to proceed.

The work is a credit not only to the author, but to the translator, and we can recommend it to anyone seeking a book on laboratory diagnosis. J. B. O.

Diseases of the Gall-Bladder and Bile-Ducts, Including Gall-Stones. By A. W. MAYO ROBSON, F.R.C.S., Hunterian Professor of Surgery and Pathology, 1897, 1899 and 1903: and Vice President, Royal College of Surgeons of England, 1902. Assisted by J. F. DOBSON, M.S. (Lond.), F.R.C.S. Lately Resident Surgeon to the General Infirmary at Leeds. Third Edition. New York: William Wood & Co. 1904.

This is the third edition of this valuable work. The progress that has been made in the surgery of the gall-bladder and bile-ducts has been so rapid that practically the whole book has been rewritten. An entirely new chapter has been written on the Operative Technique of Gall-Stones, giving Mr. Robson's personal views and experience. Appended is an account of 539 operations performed on the gall-bladder and bile-ducts by Mr. Robson. The work is of peculiar value in that it gives the experience of a man

who has had exceptional opportunities in this field of surgery. To the surgeon the book is of great value; to the general practitioner it is of value in that it shows what may be done by a skilled operator.

Simon's Clinical Diagnosis. A Manual of Diagnosis by Microscopic and Chemical Methods. For Students and Practitioners. By Charles E. Simon, M.D., late Assistant Resident Physician at Johns Hopkins Hospital, Baltimore. New (fifth) edition, thoroughly revised and much enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1904.

Five editions in eight years is Dr. Simon's record for his "Clinical Diagnosis." The present edition is similar in size and form to its predecessor but embodies a very considerable new material which has appeared in the last two years. The chapter on the blood has been largely rewritten and increased in size. A valuable addition is also a section dealing with the nature of aniline dyes and the principles of staining, matters about which even skilled laboratory workers are often poorly informed. The kryoscopic examination of the blood has been taken up in a new section and the general topic of leucocytosis has been rearranged. Other subjects dealt with in the book have been changed and altered as the necessities of an advancing knowledge have required. The book is deservedly popular.

The Closure of Laparotomy Wounds as Practised in Germany and Austria. Including Detailed Methods and Views communicated by over Fifty Leading Surgeons. Edited and Translated by Walter H. Swaffield, F.R.C.S. Ed., M.D. Ed. Fellow of the Obstetrical Society of London. London: J. & A. Churchill, 7, Great Marlborough Street. 1904. All rights reserved. Philadelphia: P. Blakiston's Son & Co.

We have often thought that it would be of interest to collect the various methods of closing celiotomy wounds. Mr. Swaffield has collected the detailed methods of over fifty surgeons, and it is really extraordinary to see the variations that exist in closing an abdominal wound. The majority of operators use some method of suture in layers. In fact, the simple through and through suture in median laparotomies is used by relatively few surgeons. This is an excellent compilation of methods, but we regret that Mr. Swaffield has not analyzed the different methods and given us his opinion as to what constitutes the best method.

The Practical Medicine Series of Year Books. Comprising ten volumes on the year's progress in Medicine and Surgery. Issued monthly. Under the general editorial charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. *Volume II. General Surgery.* Edited by John B. Murphy, M.D., Professor of Surgery, Northwestern University, Medical School, Chicago: The Year Book Publishers, 1903.

This series of year books is intended for the general practitioner. The one on surgery, however, will be of interest to anyone doing surgical work. All the important and many of the minor advances in surgery are recorded in sufficient detail to be of value. It was published in November, 1903, and we have used it and found it to be of practical value.

Infection and Immunity with Special Reference to the Prevention of Infectious Diseases. By George M. Sternberg, M.D., LL.D., Surgeon-General U. S. Army (retired). New York and London: G. P. Putnam's Sons. 1903.

In this interestingly written volume the necessary measures are given for preventing the spread of infectious diseases. Although designed for non-medical readers, physicians will find it a valuable work of reference. We agree with the author that a knowledge of the chief facts bearing upon infection and immunity "should constitute an essential part of a liberal education."

The book is divided into two parts, the first of which is devoted to a general consideration of infection, disinfection and immunity. In part second all the important infectious diseases are taken up separately, the mode of transmission of each is discussed, and the best means of preventing its extension.

The author states that the first confirmation in this country of the discovery of the malarial parasite was made by himself in March, 1886. He appears to have overlooked the fact that a year previously Councilman and Abbot[1] described pigmented and hyaline bodies within the red blood corpuscles in two fatal cases of malarial fever.

Recent investigations in serum diagnosis and therapy are not described, as he does not regard this line of work suitable for popular treatment. For the same reason the theories of immunity are not presented.

The Mother's Manual. A month by month guide for young mothers. By Emelyn Lincoln Coolidge, M.D., Visiting Physician of the Out-Patient Department of the Babies' Hospital, New York; formerly House Physician of the Babies' Hospital, New York; Physician in Charge of the Babies' Clinic of the Society of the Lying-in Hospital of the City of New York. Illustrated. The Woman's Home Library. Edited by Margaret E. Sangster. pp. 263. New York: A. S. Barnes & Company. 1904.

This little book, while not the worst of its class, is far from being the best. We can therefore hardly recommend it. The arrangement is peculiar, each month during the first year receiving a chapter, the other chapters being devoted to longer periods. While this arrangement is, in a way, satisfactory, we hardly see why croup and vomiting should, for example, be spoken of in the third month, and earache and hiccoughs in the fourth month rather than anywhere else. The style of the book is suggested by the fact that hands are usually spoken of as "little hands."

[1] Am. Journ. Med. Sci., April, 1885, p. 416.

The Summer Diarrheas of Infants. Their Etiology, Pathology and Treatment. By H. ILLOWAY, M.D. Formerly Professor of Diseases of Children, Cincinnati College of Medicine and Surgery; formerly Visiting Physician, Jewish Hospital, Cincinnati; one of the Collaborators on the American Text Book of Diseases of Children (edited by Starr); Fellow of the Academy of Medicine, New York City, etc. pp. 150. New York: E. R. Pelton. 1904.

After setting aside dysentery as a separate disease, the author divides the cases of summer diarrhea in infants into three classes: heat stroke, cholera infantum and summer complaint. He says, and probably rightly, that heat stroke in infancy is usually unrecognized and mistaken for some form of diarrhea. He describes cholera infantum properly, but does not believe that it is due to bacteria or acute milk infection. He believes that it is caused by great heat in combination with great humidity. He includes all the other diarrheas, except those due to improper food, under the head of summer complaint. He claims that bacteria play no part in their etiology but that they are due primarily to pyrexia produced by the high temperature of the summer. The pyrexia inhibits or diminishes the secretion of hydrochloric acid and causes dyspepsia, as the result of which diarrhea and intestinal catarrh develop. His treatment is based on these lines: reduction of fever by the wet pack and hydrochloric acid for the dyspepsia.

We cannot, of course, agree with either the author's premises or conclusions, although we must admit that there is a modicum of truth in what he says. His arguments are ingenious, but will not bear very close analysis. The book is rather amusing to one familiar with the subject, but may, we fear, do harm if it falls into the hands of students or of those not well grounded in medicine.

Post-Mortem Pathology. A Manual of Post-Mortem Examinations and the Interpretations to be drawn therefrom. A Practical Treatise for Students and Practitioners. By HENRY W. CATTELL, A.M., M.D., Pathologist to the Philadelphia Hospital and the West Philadelphia Hospital for Women. Philadelphia and London: J. B. Lippincott Company. 1903.

This is one of the best and most complete works on post-mortem technique. It is equal and in some respects superior to the admirable *Sectionstechnik* of Nauwerck and the recently published French treatise of Letulle. Over two hundred pages are devoted to a description of procedures employed at the autopsy table and to pathological diagnosis. The remainder of the work contains chapters on the preservation of tissues, bacteriological investigations, weights and measures, comparative post-mortems, and medico-legal suggestions. This manual contains much of value to pathologists, medical students, coroners, physicians, and medical examiners. The book is well printed and contains 162 illustrations, including many excellent original photographs.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, SEPTEMBER 29, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

PHYSICAL DETERIORATION.

DURING the past few years a rumor has been current in England to the effect that the people of Great Britain were becoming physically weaker, the principal proof adduced being the large ratio of rejections for physical causes among recruits for the army. For this reason a committee was appointed in September, 1903, consisting of seven gentlemen, who on July 20, 1904, made their report to Parliament.[1] The terms of the reference were as follows:

1. To determine, with the aid of such counsel as the medical profession are able to give, the steps that should be taken to furnish the Government and the nation at large, with periodical data for an accurate, comparative estimate of the health and physique of the people. 2. To indicate generally the causes of such physical deterioration as does exist in certain classes; and 3, To point out the means by which it can be most effectually diminished.

The committee held 26 sessions and examined 68 witnesses of both sexes, including 34 members of the medical profession, 13 of whom held official positions.

The first part of the report consists of an examination of the evidence deducible from the War office, and a statement of the steps required to obtain reliable data for determining questions of national physique. From this examination it was concluded: 1. That the evidence adduced in the Director-General's [2] memorandum was inadequate to prove that physical deterioration had affected the classes referred to. 2. That no sufficient material (statistical or other) was at present available to warrant any definite conclu-

[1] Report of the Inter-Departmental Committee on Physical Deterioration: Vol. I. Report and Appendix; Vol. II. List of Witnesses and Minutes of Evidence; Vol. III, Appendix and General Index. London, 1904.

[2] Of the Army Medical Service.

sions on the question of the physique of the people by comparisons with data obtained in past times. 3. That a partial investigation, as for instance, into the condition of the classes from which recruits are at present mostly drawn, might be very misleading, however carefully conducted, and might give rise to erroneous conclusions on the general question, unless checked by expert knowledge.

One of the facts brought out in this part of the inquiry was that obtained by the British Association for the Advancement of Science in 1883, to the effect that the average stature of boys between the ages of eleven and twelve in the public schools of Great Britain was 54.98 inches, while that of boys in the industrial schools of the same ages was 50.02, a difference of nearly five inches. The difference in two extreme classes of adults was only three and a half inches. Professor Cunningham of the University of Edinburgh outlined a scheme embracing the establishment of a Central Anthropometric Bureau, which should include an Honorary Consulting Committee, a Central Bureau at London and a corps of surveyors or measurers, charged with the duty of obtaining the following data:

1. Height. 2. Chest girth, maximum and minimum. 3. Weight. 4. Head (length, breadth, and height). 5. Breadth of shoulders. 6. Breadth of hips. 7. Vision, by Snellen's types and by colors. 8. Degree of pigmentation.

The second part of the report deals with the causes and indications of degeneracy in certain classes of the community and the means by which it may be arrested. These topics are very fully treated. The committee states at the outset that "the impressions gathered from the great majority of the witnesses examined do not support the belief that there is any general progressive physical deterioration."

The chief points of interest treated in this part of the report are, the urbanization of the people, including overcrowding, and the pollution of the air. As an offset to these conditions, it was shown that very great improvement had taken place in the quality of public water supplies, the housing of the people, the cleansing of unhealthy areas, the abatement of nuisances and improvement of the supply of milk and other articles of food. In the matter of factory employment, the committee also state that "great amelioration has taken place in the circumstances of labor."

"Occupations had a profoundly selective effect, the strongest following the calling where their physical powers will have the maximum advantage in wage earning and the weakest drifting to those where their lack of vigor will tell least against them. By this pressure the weaker vessels are constantly recruiting those fields of employment least capable of fostering development, and the poorest in physique are those met with in the lowest paid and unskilled textile operations."

Prominence is here given to the injurious effects of dust-producing industries on the health of operatives, and to the excellent statutes recently enacted in England for the prevention of such injury. By an act of 1901, followed by an order of Feb. 4, 1902, a minimum of 600 cubic feet of fresh air per hour is prescribed for each person in certain textile factories. By another act, the compulsory notification by physicians of all cases of lead or of other metallic poisoning and of anthrax occurring among factory workers is also required. Dr. Young, President of the Association of Certifying Factory Surgeons, also recommends that all cases of tuberculosis in factory employes be notified. The injurious effects of alcoholism came in for a share of attention, and evidence was presented showing that the consumption of intoxicating drink had largely decreased in countries where wise legislation had been enacted with that end in view, especially in Norway and Sweden.

Other important topics considered were the depletion of rural districts by the exodus of the best types, the alleged tendency of superior stocks in all classes toward a diminished rate of reproduction, food, infant mortality, the employment of mothers late in pregnancy and too soon after childbirth, decrease in breast-feeding, defective milk supply, parental ignorance and neglect, medical inspection of schools and the feeding of school children, juvenile smoking, syphilis, insanity, care of the eyes, ears and teeth. Upon this latter point, the committee says there are happily no grounds for associating dental degeneracy with progressive physical deterioration. In the words of one of the experts examined: "It is undoubtedly the better class schools, in my experience, where the teeth are the worst, the higher the class, the worse the teeth."

In the third part of the report, the committee presents a condensed summary of its recommendations, which embrace fifty-three topics, the principal subjects being the establishment of a permanent anthropometric survey along the lines already carried out by Bowditch in Massachusetts, by Quetetet and Pagliani in Brussels and Turin, and by others in Sweden and Denmark. They also recommend the maintenance of a registration

of sickness, not confined to infectious diseases, the creation of an Advisory Health Council like the *Comite Consultatif d'Hygiene* of France, more drastic methods of dealing with overcrowding in cities, the formation of labor colonies like that of the Salvation Army at Hadleigh with the added power of compulsory detention, stricter enforcement of laws preventing smoke pollution. The powers of factory surgeons should be extended so as to enable them to examine employes at later ages than sixteen, and to re-examine when necessary at definite intervals. A scientific inquiry into the physiological causation and effects of over-fatigue is also recommended. Upon the subject of alcoholism, the committee believes that "more may be done to check the degeneration resulting from drink by bringing home to men and women the fatal effects of alcohol on physical efficiency than by expatiating on the moral wickedness of drinking. To this end they advocate the systematic, practical training of teachers to enable them to give rational instruction in schools on the laws of health, including the physical evils caused by drinking." To combat the evils of the influx from country to town the committee recommends that every effort should be made "to open the minds of children in the rural schools to the resources and opportunities of rural existence."

Other topics which are the subject of recommendation are the teaching of cookery and the preparation of food, better laws for the registration of deaths and especially of stillbirths, for the protection of married women employed in factories by placing upon the employer the burden of obtaining proof that the required period has elapsed since the confinement of the women he employs, the encouragement of provident societies and maternity funds, the improvement of the milk supply, the training of mothers by health societies established for this purpose, games and exercises for school children, *creches* for infants and many other recommendations of equal importance looking to the future welfare and improvement of the conditions affecting the population.

The committee concludes by hoping that "the facts and opinions they have collected will have some effect in allaying the apprehensions of those who, as it appears, on insufficient grounds, have made up their minds that progressive deterioration is to be found among the people generally."

Volume II contains 504 pages of closely printed minutes of evidence, of which those of Dr. Eichholz, H. M. Inspector of Schools; Miss Anderson, Inspector of Factories; Mr. Dolamore, Secretary of the British Dental Association; Dr. William Taylor, Director-General of the Army Medical Service; Drs. Scott and Young, Factory Surgeons; Mr. Lamb of the Salvation Army, and several medical officers of health, contain valuable and instructive information. Volume III contains twenty or more appendices, with statistics, diagrams, photographs and correspondence upon special topics having reference to physical deterioration.

NEW BUILDINGS FOR THE BOSTON INSANE HOSPITAL.

THURSDAY afternoon of last week a large number of persons attended the formal opening of three new buildings in connection with the Insane Hospital Department of Boston. Those who attended were representative of this branch of hospital work. The building and opening of these added accommodations is of much importance to the work of the hospital itself, and of very considerable significance in relation to the general problem of hospital construction. The gradual tendency which has now assumed a perfectly distinct form, of constructing hospitals for the insane on the same general principles as hospitals for other types of patients, finds exemplification in these new buildings. We have been slow in recognizing the necessity of laboratories and ward arrangements which shall have in view the treatment of the inmates as individuals with diseases which require the same painstaking study as is called for in other types of disease.

The contract for the construction of the three buildings was awarded in August, 1903, and work was quickly begun. The three buildings contain ten wards and a mortuary; special provisions have been taken to insure protection against fire. The main building is three stories in height, and has two wards on each floor, planned in general after wards in hospitals of other character. Each ward contains thirteen beds, and adequate toilet, bath and other service rooms are provided, as well as the necessary dining rooms and kitchens. With these six wards it should be possible to effect a separation of the patients in such a way that the disadvantages of close association may in great measure be avoided. Therapeutic baths, a gymnasium, an operating room, a laboratory and a photographic dark room are all provided. Another excellent provision is the establishment of an observation ward in a building of two stories accommodating in all thirty patients. Special care has been taken that in these wards, which

will be devoted to suicidal patients who do not require bed treatment, a view of the entire ward may easily be had by the nurse in charge. For the more turbulent, noisy and destructive patients, two wards are provided in a detached building, planned in such a way that these usually troublesome patients may be the least possible source of disturbance to others.

These buildings were much needed, and we have no doubt will immediately prove their usefulness. The problems of properly caring for the insane, and the insane who are also bodily sick, are peculiarly difficult and require a degree of foresight and adaptation of means to ends which is hardly required among those who are mentally well, however physically incapacitated. That the city government and the people at large should take an increasingly active interest in the provision for the insane is an excellent indication that, slow as it is in coming, the curious and deep-rooted prejudice existing against hospitals for this class will gradually subside. This must be brought about by the recognition that mentally affected individuals are sick persons in precisely the same general sense as those afflicted with bodily ailments.

MEDICAL NOTES.

International Dermatological Association. — The International Dermatological Association has voted to hold its next meeting in the United States and Dr. J. C. White of Boston has been elected president.

French Surgical Association. — The seventeenth congress of the French Surgical Association will be held in Paris, at the Faculty of Medicine, Oct. 17, 1904, under the presidency of Dr. S. Pozzi. Three questions are to be presented for discussion: Surgical Treatment of Cirrhosis of the Liver; Value of Blood Examination in Surgery and Traumatic Separation of the Epiphyses.

Distinguished Foreigners. — Prof. T. Escherich of Vienna recently addressed the Chicago Pediatric and Medical societies on the topic of Tetany in Infants. He also gave a public medical clinic at one of the Chicago hospitals. Sept. 15, Sir Felix Semon was given a dinner by two of the Chicago medical societies at the Chicago Club. Prof. A. Wassermann delivered an address on Sept. 28, at a special meeting of the New York Pathological Society on certain matters relating to immunity.

Death of Dr. C. L. Herrick. — The death of Dr. C. L. Herrick, editor of the *Journal of Comparative Neurology and Psychology*, is announced as having occurred Sept. 15, at Socorro, N. M. For ten years Dr. Herrick has been able to hold the disease, tuberculosis, which finally ended his life, in check, and during that period has been a prolific contributor to zoölogical and geological literature. During the last months of his life he was still able to formulate much unfinished work, particularly on philosophical topics.

Examination of Berlin School Children. — According to a statement in the *Medical News* this year, for the first time, all the children in the schools of Berlin were examined as to their health. There were 15,000 children and 36 examiners. The results were astounding. Ten per cent of the children were found insufficiently developed in body or mind, and had to be excluded for half a year or longer; 16% were not strong enough to attend school, owing to the debilitating effect of scarlet fever and other diseases; 15% suffered from anemia; 5% had tuberculous trouble.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon Sept. 28, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 44, scarlatina 11, typhoid fever 25, measles 3, smallpox 0.

Centenarians. — Lawrence Sullivan, the oldest resident of South Boston at the time of his death, died recently at the reputed age of one hundred and four. His life until 1865 was spent in Ireland whence he moved to South Boston. He was abstemious in his habits, and it is said that both his father and grandfather reached the one hundred-year mark. He had twenty-one grandchildren and fifteen great-grandchildren.

Mrs. Emily Everett, supposed to be the oldest person in Cambridge, died last week in that city at the reputed age of one hundred and five years. She was born in Haverhill, Feb. 4, 1799, and hence has lived in three centuries. Her husband was graduated in the Harvard class of 1815, and died in 1833.

Boston Board of Health Laboratory. — The Boston Board of Health Laboratory is now completely fitted up at its new quarters in the Boylston Chambers, 739 Boylston Street, and is open to the inspection of physicians every day, between 8.30 A.M. and 6 P.M.

For the reception and incubation of late cultures (reaching the laboratory after 6 P.M.) a new device has been installed. Two slots are cut in one of the laboratory doors, suitably lettered with directions, lighted by an electric lamp and accessible, without entering the laboratory itself, from the hallway of the building. One of these slots is fitted for the reception of outfits other than diphtheria. The second is for diphtheria outfits alone, and connects with a chute which conveys the outfit directly into an incubator, running at 37° C. The cultures placed in this chute at night are therefore ready for examination next morning, having been incubated from the time of deposit in the slot to the time of examination.

The elevator runs until 9 P.M. every day (Sundays and holidays included), and the building is open until 10.30 P.M. The physician himself, or a messenger sent by him, may therefore readily deliver cultures during these hours. After these hours and all night, admittance may be had by ringing the front door bell.

NEW YORK.

APPOINTMENT OF PROF. CHARLES BASKERVILLE. — In the College of the City of New York there has just been appointed to the chair of chemistry, Prof. Charles Baskerville, late of the University of North Carolina, who is the discoverer of two new inorganic elements, *carolinium* and *berzelium*.

GIFT TO COLLEGE OF APPLIED SCIENCE. — It is announced that Lyman C. Smith of Syracuse, N. Y., has given $100,000 to erect an additional building for the Lyman Cornelius Smith College of Applied Science in Syracuse University. Four years ago Mr. Smith established the school with a gift of $750,000.

CORNELL MEDICAL SCHOOL. — It is already announced that the first year's class of the Cornell Medical School is much larger than that of any previous year. Changes in the faculty are Dr. Frederick Whiting, professor of otology in place of Dr. Gorham Bacon resigned, and Dr. Adolf Meyer, professor of psychiatry in place of Dr. Allan McLane Hamilton.

GIFTS TO NEW YORK UNIVERSITY. — At a meeting of the Executive Committee of the Trustees of the New York University held Sept. 12, Chancellor MacCracken announced several gifts to the medical and chemical laboratories and the presentation of an additional plot of three thousand square feet at University Heights to the department of Applied Science. This was given by Frederick W. Devoe in memory of the late Andrew H. Green.

FUND FOR NASSUA HOSPITAL. — About $8,000 was cleared for the Nassua Hospital at Mineola, the capital town of Nassau County, Long Island, by a bazaar and out-door fete given on Sept. 24 at Harbor Hill, Roslyn, the beautiful country-seat of Mr. and Mrs. Clarence H. Mackay. It was the largest affair of the kind ever held on Long Island outside of Brooklyn, some 3,500 persons being in attendance.

PHYSICAL CULTURE. — At a meeting of the Educational Section of the International Congress of Arts and Sciences, Dr. William H. Maxwell, superintendent of the public schools of New York City, made an address in which, after observing that no school was doing adequate work without physical culture in the form of play, gymnastics, athletics and manual training, he went on to say that even if every schoolhouse in the city were used at all reasonable hours for such purposes, this would still fall far short of counteracting the tenement-house evil. Nothing short of a revolution in the existing system, he contended, would restore the life of the poor in the city of New York to something like normal conditions. What he proposed was nothing less than the eradication of the tenement-house as it has been known in New York. He suggested the somewhat Utopian scheme that the municipality should employ its credit to purchase tracts of unoccupied land upon which to erect model homes for workingmen amid pleasant and sanitary surroundings, and rent or sell them at a moderate profit.

Obituary.

PROF. NIELS FINSEN.

THE death of Prof. Niels Finsen is announced from Copenhagen. He was born in Iceland in 1860, and, after a preliminary education at a small school on one of the Faroe Islands, he undertook the study of medicine at the University of Copenhagen. When about to begin his work in 1890, his health gave way, and from that time to this he had with much suffering contemplated the inevitable outcome of his disease. In spite of this handicap, which to a less determined man would have precluded all effort, he undertook and carried to a successful preliminary conclusion his theories of the curative effect, particularly in the treatment of lupus, of certain light rays. He at once offered his discovery to the scientific world, and out of his investigations

has developed the Finsen Ray Institute of Copenhagen where rich and poor alike have been treated. From 1890 to 1893 he was preceptor of anatomy at the University of Copenhagen, but later devoted himself more particularly to his studies of the effects of different types of light rays. His work in the treatment of smallpox, through the use of red rays, and particularly his investigations on the effect of ultra-violet rays in lupus, have served to bring his name into prominence.

In spite of the shortness of time in which Professor Finsen has been able to work, he has unquestionably made for himself a unique place in the field of medicine. For many years afflicted with an incurable disease, he had, nevertheless, so far as his strength permitted, continued to exercise control over the institution of which he was the head. The attention which his work has drawn to the significance of light in the treatment of disease will no doubt continue to bring forth results. It is, nevertheless, altogether regrettable that the brilliant discoverer of the rays which go by his name should not have seen a further fruition of his work. In this transitional stage of knowledge it is not possible to say with certainty how far the principles enunciated by Finsen are likely to find confirmation. It cannot, however, be doubted that he had drawn attention in a wholly scientific fashion to a means of physical therapeutics which demands and will no doubt receive the painstaking study of other investigators. In December, 1903, Finsen was awarded the Nobel medical prize by the Norwegian Government. It will also be remembered that a few months ago King Edward and Queen Alexandra visited the Finsen Institute with Sir Francis Laking for the purpose of studying the methods which have so largely had their inception in Copenhagen.

Miscellany.

CREMATION.

The Société pour la Propagation de l'Incineration held its annual meeting in Paris recently. The proceedings opened with a funeral oration in honor of the late Sir Henry Thompson, delivered by the General Secretary, M. Georges Salomon. Dr. Bourneville, President of the Society, stated that the number of cremations in Paris during 1903 amounted to 6,628 as against 6,710 in 1902. He expressed a confident hope that when the fine crematorium in the Pere-Lachaise Cemetery is complete, as it will be at no distant date, the number of incinerations will largely increase. The general secretary then read a report on the progress of cremation in various countries. In the United States the number of bodies disposed of in that manner has increased from 2,685 in 1901 to 3,160 in 1902. Great Britain has nine crematories, in which 452 bodies were incinerated in 1902 and 479 in 1903. In Germany there are 86 cremation societies, counting among them 20,000 members; there are 8 crematories, and the number of bodies burnt was 692 in 1901, 861 in 1902 and 1,074 in 1903. These figures are the more noteworthy since cremation is still forbidden in Prussia, Saxony, Bavaria, Württemberg, and some other parts of Germany. In Italy there were 340 cremations in 1902. In Switzerland there are crematories at Zurich, Geneva, Basel, and Saint-Gall. Denmark has 1, Sweden 2. There are crematories at Montreal, at Buenos Aires, and at Adelaide in Australia. In Japan there are 7.

Dr. Bourneville was re-elected President; M. Salomon, General Secretary; and among the Members of Council are Professor Cornil, MM. Camille Flammarion and Yves Guyot.—*British Medical Journal.*

Correspondence.

DR. SAJOUS ON "INTERNAL SECRETIONS."

Bar Harbor, Me., Sept. 19, 1904.

Mr. Editor: I observe with surprise and regret a review of Dr. Sajous' book on the "Internal Secretions" in the Boston Medical and Surgical Journal of Sept. 15, 1904, in which is expressed no deliberate judgment, but only condemnation. The reputation of your Journal for the fairness and wisdom of its reviews and opinions warrants my lodging a courteous protest against the tone and character of the review, which must have escaped your attention.

First, let me say I have enjoyed the opportunity of knowing Dr. Sajous and his work for many years, and am impressed with several important facts, among them his clear, judicial mind, his caution in expressing opinions, and the encyclopedic character of his knowledge acquired by the immense scope of his reading in the preparation of the Annual of the Medical Sciences and the Encyclopedia, which involves a constant survey of the entire realm of medicine. This first volume of his book is the product of a larger and broader familiarity with current medical literature than is possible to almost any other man to-day, or, indeed, ever. No man is better able to judge of the rise and fall of tenable or untenable medical belief. He would naturally be the last man to give utterance to chimerical views, but the one man who could best perceive the interrelationships between facts and fancies.

I am familiar with this first volume of the "Internal Secretions," and also with much of the data to appear in the second volume, which will present an immense array of confirmation of the opinions expressed in the first volume, along with the practical application of the generalizations enumerated. In talking with a number of men whom you would admit to be competent to exert authority, they are one and all of the opinion that this work will exercise great influence on medical thought in the future, and aid in making clear much which is to-day chaotic or unrelated. You, yourself, sir, if you gave it your personal attention and could talk with the author, would recognize the power of the argument, built up as it is from the carefully selected statements of leading physiologists, pathologists and others whose writings stand highest in medical confidence.

Finally, let me venture the opinion that to dispose of a large and novel subject, as your reviewer does, by condemning the favorable reviews (there are only a few otherwise) and warning the medical public to beware of giving attention to a book of such scope, is most unusual, to say the least. Again, this is merely the first volume, and in mere fairness a final opinion cannot be formed till the second one (promised) appears.

Respectfully yours,

J. Madison Taylor.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 17, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Diarrheal Diseases.
New York . .	3,908,644	1,227	475	33.58	10.43	1.30	1.71	15.40
Chicago . . .	2,021,086	443	157	32.05	7.67	1.35	1.58	17.38
Philadelphia	1,467,968	408	116	31.62	4.41	2.20	3.68	10.54
St. Louis . .	633,696	—	—	—	—	—	—	—
Baltimore . .	542,229	169	55	25.44	2.96	1.18	3.55	10.06
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	99	—	39.39	9.09	5.05	9.09	17.17
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	70	28	30.00	4.29	1.43	—	15.71
Boston . . .	617,950	212	87	33.02	10.37	1.42	1.89	10.37
Worcester . .	136,925	39	16	33.33	10.26	2.56	—	20.51
Fall River . .	119,849	40	21	35.00	12.50	—	2.50	20.00
Lowell . . .	104,402	37	15	32.43	5.41	2.70	—	18.92
Cambridge .	100,998	33	13	42.42	—	—	6.06	21.21
Lynn	73,875	25	8	24.00	—	4.00	—	—
Lawrence . .	72,348	24	13	41.67	8.33	—	4.17	25.00
Springfield .	72,020	—	—	—	—	—	—	—
Somerville .	70,413	21	5	28.57	—	—	—	14.29
New Bedford	68,863	24	14	37.50	—	—	—	31.33
Holyoke . . .	50,538	20	10	25.00	5.00	5.00	—	10.00
Brockton . .	46,601	9	2	11.11	—	—	—	—
Newton . . .	39,310	12	2	25.00	—	8.33	—	8.33
Haverhill . .	39,061	13	6	23.08	—	—	—	7.69
Malden . . .	37,205	7	1	28.57	—	—	—	—
Salem	37,188	20	12	25.00	—	—	—	25.00
Chelsea . . .	36,499	11	2	45.45	9.09	9.09	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	14	6	21.43	—	—	—	7.14
Everett . . .	30,309	4	2	—	—	—	—	—
North Adams	29,201	11	5	—	—	—	—	—
Quincy . . .	26,798	7	—	57.14	—	—	—	42.86
Gloucester .	26,121	5	3	20.00	—	—	—	20.00
Waltham . .	25,797	4	1	—	50.00	—	—	—
Brookline . .	23,576	6	—	—	—	—	—	—
Pittsfield .	22,870	4	—	25.00	—	—	25.00	—
Medford . .	21,956	1	—	100.00	—	—	—	—
Chicopee . .	21,692	2	—	50.00	—	—	—	50.00
Northampton	20,314	—	—	—	—	—	—	—
Beverly . . .	15,807	—	—	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	5	2	—	—	—	—	—
Adams . . .	14,745	5	2	20.00	20.00	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	3	—	66.67	—	—	—	—
Newburyport .	14,478	2	—	—	—	—	—	—
Woburn . . .	14,315	5	3	20.00	—	—	—	20.00
Melrose . . .	13,819	3	—	—	—	—	—	—
Westfield . .	13,809	6	—	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	—	—	—	—	—	—	—
Revere . . .	13,609	3	2	33.33	—	33.33	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody . .	13,406	—	—	—	—	—	—	—
Gardner . . .	12,324	2	1	100.00	—	—	—	50.00
Southbridge .	11,716	3	2	66.67	33.33	—	—	—
Watertown .	11,575	1	—	—	100.00	—	—	—
Weymouth .	11,350	5	2	—	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,064; under five years of age, 1,089; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 984; acute lung diseases 241, consumption 347, scarlet fever 12, whooping cough 11, cerebrospinal meningitis 23, smallpox 3, erysipelas 2, puerperal fever 7, measles 4, typhoid fever 58, diarrheal diseases 446, diphtheria and croup 49.

From whooping cough, New York 9, Philadelphia and Cambridge 1 each. From measles, New York 4. From scarlet fever, New York and Baltimore 4 each, Philadelphia 2, Fall River and Quincy 1 each. From cerebrospinal meningitis, New York 19, Boston, Worcester, Cambridge and Southbridge 1 each. From erysipelas, Chicago and Philadelphia 1 each. From smallpox, Chicago 2, Philadelphia 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Sept. 3, the death-rate was 18.2. Deaths reported 5,335; acute diseases of the respiratory organs (London) 49, whooping cough 91, diphtheria 39, measles 83, smallpox 3, scarlet fever 31.

The death-rate ranged from 6.4 in Hornsey to 28.7 in Bootle; London 16.4, West Ham 18.8, Brighton 17.3, Plymouth 27.4, Bristol 15.5, Birmingham 15.7, Leicester 18.4, Nottingham 13.6, Liverpool 27.2, Bolton 13.6, Manchester 24.6, Salford 26.6, Halifax 11.6, Bradford 17.0, Leeds 15.6, Sheffield 19.3, Hull 26.3, Cardiff 19.2, Rhondda 20.9, Merthyr Tydfil 22.9, Swansea 18.5.

METEOROLOGICAL RECORD.

For the week ending September 17, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 11	30.14	62	66	57	84	91	89	S	W	E	3	8	C.	F.	0
M. 12	30.00	74	86	62	90	86	88	S	W	W	12	8	O.	R.	.73
T.. 13	30.38	61	65	57	68	68	68	N	E	S E	9	6	F.	O.	.02
W. 14	30.16	66	74	58	81	94	88	S	E	S	9	21	O.	O.	.09
T.. 15	29.84	62	74	50	100	66	83	N	W	W	20	8	R.	C.	0.46
F.. 16	30.15	59	70	48	72	70	71	N	W	S W	5	14	C.	C.	0
S.. 17	30.03	66	77	56	78	70	74	S	W	S W	10	5	F.	C.	0
☞	30.10		73	55			80								4.32

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

SOCIETY NOTICES.

ASSOCIATION OF MILITARY SURGEONS.—The annual meeting of the Association of Military Surgeons will be held at the World's Fair, St. Louis, from Oct. 10 to 15.

MEDICAL SOCIETY OF VIRGINIA.—The thirty-fifth annual session of the Medical Society of Virginia will be held at Richmond, Va., Oct. 18–21.

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheatre of the Boston City Hospital on Sept. 30, from 10 A.M. until 12.30 P.M.: Inguinal Hernia; Fracture Patella; Tumor Tibia; Tumor Bladder; Stone in Common Duct.

RECENT DEATH.

GEORGE SEYMOUR CONANT, M.D., a well-known New York practitioner, died on Sept. 23. He was fifty-one years of age and a graduate of Bellevue Hospital Medical College in the year 1877. Dr. Conant had for a number of years been a sufferer from diabetes, and had naturally made a special study of the disease. His observations led him to conclude that it was of cerebral origin, and in the hope of adding something to our knowledge of its pathology he in his will bequeathed his brain to Cornell University.

BOOKS AND PAMPHLETS RECEIVED.

Serums, Vaccines and Toxines in Treatment and Diagnosis. By William Cecil Bosanquet, M.A., M.D. Oxon., F.R.C.P. Lond. Chicago: W. T. Keener & Co. London: Cassell & Co., Ltd. 1904.

Transactions of the Massachusetts Medico-Legal Society. Vol. III, No. 6. 1904.

Some of the More Unusual Results of Movable Kidney. By Charles P. Noble, M.D. Reprint.

The Treatment of Fibroid Tumors of the Uterus. By Charles P. Noble, M.D. Reprint.

Report of a Case of the Invasion of a Fibromyoma of the Uterus by an Adenocarcinoma, which by Metaplasia had assumed the Appearance of a Squamous Cell Carcinoma. By Charles P. Noble, M.D. Reprint.

Medical Libraries, Medical Publishers and the Medical Profession. By Charles Perry Fisher. Reprint.

Grosse oder kleine Röntgenapparate? Von Diplom-Ingr. Dr. phil. Josef. Rosenthal. München.

State of New York. Seventeenth Annual Report of the Superintendent of the St. Lawrence State Hospital to the State Commission in Lunacy for the Year ending September 30, 1903. Albany: J. B. Lyon Company. 1904.

The Physiological Areas and Centres of the Cerebral Cortex of Man, with New Diagrammatic Schemes. By Charles K. Mills, M.D. Reprint.

Chirurgie Orthopédique par Le Professeur Paul Berger et Le Docteur S. Banzet. Illustrated. Paris: G. Steinheil, Editeur. 1904.

Original Articles.

GASTRIC ULCER IN CHILDREN.*

BY ELBRIDGE G. CUTLER, M.D.

The infrequency of gastric ulcer in children under fourteen years of age is so great that many pathologists and practitioners of large experience have never met with it, and others with equally large opportunities of observation have denied its occurrence. Kundrat [30] says that recent (acute) round ulcers of the stomach occur in every age of childhood, even in infants a few days old, though more infrequently than in adults. He says these ulcers are very small, usually the size of a hemp-seed to a lentil. Chronic ulcers, on the other hand, according to him, have not been observed under the age of ten years, and even above this age they are extremely rare (Dusser).[19] Rokitansky,[51] with his wide experience, never encountered the disease in a child under fourteen years. Widerhofer [50] says he has never seen gastric ulcer in children and is inclined to disbelieve in its occurrence. Among 262 cases of gastric ulcer that were examined post-mortem during fifteen years at the Berlin Pathological Institute, says Riegel,[43] no case under ten years was discovered. The Boston Children's Hospital, opened July 19, 1869, has never had a case. (Private letter from Roteh.) The Boston City Hospital, opened June 1, 1864, has had but a single case. (Letter from Dr. G. H. M. Rowe, superintendent and resident physician.) The Massachusetts General Hospital, opened Sept. 1, 1821, has had but three cases below the age of fourteen years, which have been diagnosticated as gastric ulcer. None of the members of the Pediatrics Department in the Harvard Medical School have ever met with a case.

Nevertheless, so many cases are now on record that it must be acknowledged by all to occur, though with extreme rarity. After careful search of the literature I have found twenty-four cases with autopsy, and two without, twenty-six in all, and perhaps have overlooked a few others, while doubtless a number of well-attested instances have never been recorded for one reason and another. I will add three cases from the records of the Massachusetts General Hospital.

In many of these cases of ulcer of the stomach the shape has been described as being circular, the edges perpendicular, smooth, soft, sharply defined, and in some it has been expressly stated that they looked as if they had been punched out. The different layers have been easily distinguishable with the naked eye, the edges and floor clean and but seldom showing necrotic shreds, the walls also exhibiting no marked pathological change, the base formed by the muscular or serous coat of the stomach. In the older ulcers the loss of substance has usually been oblique from below upward, the submucosa retracted (mucosa undermined), and the mucosa showing a marked inversion. Microscopically there has been a little interstitial cellular infiltration. In the most chronic ulcers there is callous induration of the floor and walls tending to the formation of cicatricial tissue and adhesion to neighboring organs. Aside from a very small zone of infiltration at the edge of the ulcer the mucous membrane is essentially normal. These differences then would seem to justify the division into acute and chronic forms, as given below.

ACUTE CASES.

Billard [4 20] reports two cases as follows:

(1) A new-born child died on its fifth day, of anemia from gastric and intestinal hemorrhage. The gastric mucous membrane for the size of a thirty-sous piece near the cardia was completely destroyed. The surface of the ulcer was blackish; its irregular pointed edges were of the same color, and looked as if burnt.

(2) Child fifteen days old. In the pyloric third in the greater curvature there was a deep, round ulcer about two lines in diameter with very elevated, dark, brownish-red edges. The floor, which was formed of serous membrane, had a blackish appearance. The ulcer was not surrounded by inflammatory tissue, and resembled the follicular ulcers in the intestine of consumption. The stomach showed nothing further abnormal. [20] I have not been able to find the original of this case.

Busch [9] gives the record of a post-mortem examination as follows:

A child seven days old. Autopsy about thirty-six hours after death. Hole in the anterior gastric wall the size of a pfennig, situated in the greater curvature near the pylorus. Edges of the opening fissured; the mucous membrane in the neighborhood of the perforation gone; tear in the muscular and mucous coats.

Buzzard [10] gives the following case:

A girl, aged nine, was attacked suddenly with violent pain in the belly. Fomentations were applied by her mother, and she passed the night apparently relieved and free from distress. The following morning at half-past five she became collapsed, retched once or twice, and died at six o'clock, before medical assistance could be procured. Her death was the subject of an inquest.

Post-mortem examination: The belly was found distended with gas, the peritoneum, especially where it invested the small intestines, intensely inflamed, and a quantity of brownish fluid in its cavity. In the lesser curvature of the stomach, midway between the pyloric and esophageal openings, was a perforation. The ulcer which had pierced the wall was of the usual funnel-shape with edges somewhat thickened. The mucous membrane of the stomach generally was free from any marks of disease, and there were no cicatrices of old ulcers.

The other organs were healthy, and the body presented a well-nourished appearance. At the inquest evidence was given that she had always enjoyed good health, the only exception to it being an occasional uneasiness, scarcely amounting to pain, felt at the pit of the stomach.

Rehn [39] reports as follows:

In the course of the winter of 1870–71, there came to autopsy at the Pathological Institute in Würzburg, a child of one and three-quarters years in whose stomach were two losses of substance; the larger one, situated near the smaller curvature, about 25 mm. distant from the cardia, was the size of a small lentil, funnel-shaped, and apparently penetrated to the serosa; its edges were in folds, not reddened. The other, smaller, one was situated in the middle of the stomach

* Read before The American Gastro-Enterological Association at the Seventh Annual Meeting, Atlantic City, New Jersey, June 6 and 7, 1904.

about 4 mm. from the greater curvature and was more superficial; around its folded edges was a narrow yellowish-red zone of delicate blood vessels. The structure of the stomach was otherwise unchanged. No tuberculosis was found in the stomach.

Binz [3] reports as follows:

The child, female, after a labor of eleven hours' duration, seemed healthy at birth. The next day it appeared well, took to the breast, passed abundant meconium, but cried a great deal. The following day slight diarrhea of yellowish color, gradually increasing in quantity through two days. The child nursed well. The diarrhea continued and was of intense acid reaction. The stools became fluid, less well digested and followed every half hour. Treatment did no good and a healthy wet nurse was substituted, with cessation of diarrhea but continued evidences of pain in the belly. Then vomiting occurred; later chocolate colored points and lines in the stools. Collapse and death on the eleventh day.

At autopsy a perforating ulcer was found in the anterior wall of the stomach a few lines from the lesser curvature midway between fundus and pylorus, of not quite one line diameter and looking as if it had been cut out with a punch. The periphery showed radiating elevations of the mucous membrane.

Barlow [2] reports as follows:

A female child, aged one and three-quarters years. The history was that of diarrhea and wasting for two months, followed by slight cough, and then by squinting, convulsion, slight rigidities and coma. There was no symptom to point to special involvement of the stomach.

On the anterior wall at the cardiac end, close to the great curvature, there was an oval ulcer measuring a quarter of an inch by one eighth of an inch. The edges were undermined and the loss of substance extended nearly to the peritoneum. There was no surrounding thickening and no evidence of tubercular deposit on the floor or in the immediate vicinity. There were two smaller ulcers in the great curvature about the middle zone of the stomach and two others near the pylorus. In the line of the great curvature, about three inches from the pylorus, there was an elevation under the mucous membrane, which was pale, opaque white in color, measured about one sixteenth of an inch in diameter, and presented the appearance of a miliary tubercle. There was abundant tubercle in the pia, cerebellum, choroids, cervical, bronchial and mesenteric glands, lungs, pancreas, spleen, kidneys and Peyer's patches.

Barlow considered it an open question whether the ulcers present in his specimen had been produced by the breaking down of tubercle, or whether they had formed independently of it. The presence of what he considered a miliary tubercle near the pylorus suggested the possibility of the ulcers having started in similar deposits.

Colgan [14] gives the following:

A girl of two and a half years, previously perfectly healthy, complained of not feeling well. She soon had general convulsions. There was no pain and no vomiting. Temperature 106° F., pulse full and tense, 150 per minute. Death soon followed.

At autopsy a perforating ulcer of the stomach was found on the posterior wall at the cardiac extremity, close to the greater curvature. In some places there was an entire loss of substance, the floor of the ulcer being made up only of peritoneum. There was thickening of other parts of the stomach, especially on the anterior wall, extending to the lesser curvature.

Fenwick [20] gives the following four cases from the records of the London Hospital:

(1) A girl, thirteen years old, was admitted into the hospital with symptoms of typhoid fever of eight days' duration. Vomiting occurred once or twice but there was no complaint of epigastric pain. At the end of the fourth week of the disease when the temperature had begun to decline, the patient was suddenly seized with severe hematemesis after which she became unconscious and died.

At the autopsy the anterior wall of the stomach was found to be adherent to the under surface of the liver. Scattered over the inner surface of the stomach were numerous sharply defined ulcers, the largest of which was about the size of a florin. The edges were thin and undermined and the base formed by the muscular or peritoneal coat. In the first part of the duodenum there was an ulcer of a similar character, while the whole of the intestine from the jejunum to the rectum was riddled with typical typhoid ulcers.

(2) A girl, aged twelve years, was admitted to the hospital for severe burns of the arms and legs, from which she died at the end of a week.

In the centre of the lesser curvature of the stomach there was a circular ulcer the size of a sixpenny piece, evidently of recent formation. The mucous membrane of the organ was intensely injected and presented several ecchymoses. The duodenum also showed signs of inflammation, but no ulceration could be found.

(3) A boy, aged ten, was admitted to the hospital suffering from acute pneumonia of the right side.

At the necropsy the stomach was found distended with blood clot. On the lesser curvature, one inch from the pylorus, there were two round ulcers separated from one another by a thin ridge of mucous membrane. The larger measured one inch, and the smaller about one-half inch in diameter. Both ulcers exhibited sharp edges and had penetrated to the peritoneum. On the floor of the larger ulcer there was an eroded vessel which admitted a fine probe.

(4) A female child, twenty months old, succumbed in the hospital to noma following varicella.

On the anterior wall of the stomach, near the pylorus and close to the lesser curvature, there were two small ulcers with sharp edges.

Hibbard [28] reports a case from the South Department of the Boston City Hospital.

A girl, three months' old, entered the Boston City Hospital with diphtheria. Six days later the temperature rose to 102.5° F. and she began to vomit; diarrhea which had been present a few days increased; the color of the stools, at first green, became brownish. Diarrhea and vomiting persisted and death followed on the fourteenth day after entrance.

In the stomach and intestines altered blood in considerable quantity besides the ordinary contents was found. On the posterior surface of the stomach, extending down to the greater curvature, and nearer the pyloric than the cardiac orifice, was a circular area, 5 cc. in diameter, partially outlined on either side by deep losses of substance; on one side 2.5 cm. by 6 cm., rather elliptical; on the other 3 cm. by 5 cm. with its greatest breadth in the middle portion of the ulceration. In these places the circular layer of muscle fibres was laid bare, the edges were prominent, firm and undermined. In the area included between these ulcerations the mucous membrane was soft, rather prominent, and presented many small punctate losses of substance, usually circular, about the size of a pin's head and superficial, being apparently confined to the mucous membrane. Tests of the black debris for hemin crystals were positive. The intestines contained considerable quantities of blood-colored material in the upper portion, with black granular material in large amount further down.

Microscopic examination of the stomach showed a sharply circumscribed loss of substance, with deeply undermined necrotic edges on one side, and at the other the loss of substance gradually faded out to the surface of the mucous membrane. In the mucosa there was considerable cellular infiltration and accumulation of cells in the vessels. The base of the ulcer was necrotic, and in places extended down through the sub-mucosa to the muscular coat; there was a small amount of fibrin in the tissue beneath. There was no granular tissue and no chronic inflammatory reaction. Where the ulcer was most undermined, fibrin was seen in the submucous tissue, due to fibrinoid metamorphosis of the connective tissue. At various places beneath the mucous membrane and adjoining the ulcer there were distinct hyaline thrombi in the walls of the blood vessels, and hyaline masses completely occluding them.

It is possible that the ulcer is not to be regarded as a typical gastric ulcer, but as a more acute process due to a disturbance in the circulation in the stomach produced by the hyaline thrombi, and the necrotic mucous membrane has been afterward completely digested away by the action of the gastric juice. It is also possible that the ulcer started as a distinct diphtheritic lesion of the mucous membrane. The fibrinoid metamorphosis of the connective tissue and the hyaline thrombi in the vessels are not opposed to this view, for similar changes are not uncommon at the base of the diphtheritic ulcers in the pharynx. In the few cases of diphtheritic lesions of the stomach which have come to observation the process was more diffuse and would not have led to circumscribed ulceration.

Cocks [12] reports as follows:

Male child, born Feb. 24, 1891. Normal delivery. Child well formed and weighed about seven pounds. Nothing unusual noticed till Feb. 25 when he vomited fully an ounce of clear blood. Vomiting recurred three times during the forenoon, and also later in the day. The movements from the bowels looked normal.

Feb. 26. Had several rectal movements, one of which contained a large amount of blood. Death at night.

Feb. 27. Post-mortem examination revealed an ulcer, situated just at the end of the esophagus and the beginning of cardiac end of stomach, which had perforated one of the small vessels.

Northrup [37] reports as follows:

The infant, a female one year old, was under the care of Dr. Northrup and was under treatment one month. It had vomiting and diarrhea. During the first week in the hospital its temperature varied from 102° to 103° F., after that being normal or subnormal. Respiration was from 40 to 50, and the pulse from 120 to 140. In the second week it began to refuse food and to emaciate. The diarrhea continued and the vomiting was persistent. The vomitus was somewhat brownish in color and the child died of exhaustion.

On examining the stomach it was found that the lining mucous membrane was covered with small ulcers, varying in size from dots to 1 cm. in diameter. The lesions appeared to be follicular ulcerations. In the middle of the specimen was a much larger ulcer which perforated the posterior wall. There was no evidence of an inflammatory condition, and the cause of the lesion was unknown. There was, however, a certain degree of necrosis around the ulceration.

CHRONIC CASES.

Reimer [40] gives the case of a girl, three and one-half years old, admitted to the Nikolai Children's Hospital in St. Petersburg, on April 27, 1869. From the history it appeared that the child since its first year had suffered from digestive disturbances so that it was much pulled down. Four weeks previously, without obvious cause, there was fever and vomiting. On April 28 the condition was as follows: An anemic, poorly nourished child with traces of a past rachitis. Tendency to cry. Temperature 39.5° C. Pulse, 128. Dry cough. In the lungs, vesicular but rough respiration. White coated tongue. The belly, particularly in the epigastrium, distended and tender. Liver and spleen not especially enlarged. Stools not very numerous, but of slimy character, clay colored and of offensive odor. Entire loss of appetite. In the course of the following weeks the condition so far improved that the liquid stools diminished in number, the pain and distention in the epigastrium lessened, the child became more lively and recovered its appetite. It lost all fever and on May 24 was so well that had it not been that its parents were dead and there were no relatives, it would have been discharged. It stayed in the hospital and on June 5 broke out with measles. Besides severe catarrhal symptoms of the respiratory organs, great pain in the epigastrium came on again, particularly in a rather circumscribed spot on the right, corresponding to the position of the pylorus. Tendency to vomit came on after taking food. Again coated tongue and diarrhea. Temperature, 40.3° C. On the seventh there was a very marked eruption on the whole body, high fever, severe cough without localization in the lungs. The child complained of headache and nausea. The evening before, shortly after eating some bread, vomited. On the ninth the eruption faded and the fever lessened. Diarrhea continued. The patient recovered slowly as appetite failed and the nights were restless. On the sixteenth desquamation was marked. Temperature, 38° C., pulse 112, respiration somewhat superficial as if the patient did not dare to inspire. The lungs, however, showed nothing and the whole epigastrium was very tender. The least swallowing of food now caused such severe pain and tendency to vomit that the patient refused all nourishment. She constantly asked for water. She had two to three fluid, carrion-like, stinking stools.

On the twenty-first the belly was still more distended and so painful that the weight of the bed clothes could not be borne. On paroxysms of cough she whimpered loudly, complained of burning pain in the pit of the stomach, and since early morning had twice vomited masses streaked with blood. There was moderate fever, 38.6° C.

On the twenty-sixth at midday the patient was suddenly nauseated and vomited a considerable quantity of blood, partly fluid and partly coagulated, and became very collapsed. The abdominal symptoms very much resembled peritonitis. In the night there were numerous black stools consisting of decomposed blood. In the next few days there was no special change. The nausea continued and occasionally blood tinged masses were vomited which, under the microscope, were found to be fresh blood, pus and necrosed gastric mucous membrane. Although the patient was very weak and lay in a continuous half sleep, the sensitiveness of the distended belly was so great that the least touch caused her to cry out. The tarry stools were not numerous, but were involuntary. Cold sweat. Temperature now 35.3° C. Small intermittent pulse. On the thirtieth diarrhea was profuse, and with the evidence of the severest irritation, the child died on July 1 at 4.30 A.M.

Autopsy July 2, twenty-nine hours after death. The intestines, and particularly the stomach, were blown up with gas. The peritoneum was very injected and somewhat thickened and cloudy. In the peritoneal sac was about one-half pound of bloody, puru-

lent fluid. The stomach was rose-red colored, ecchymosed, and posteriorly, in the region of the pylorus, intimately adherent to the pancreas. Its mucous membrane was in strong folds, its surface covered with elevated ecchymoses from the size of a lentil to a thaler, which were most numerous at the pylorus. Two cm. from the pylorus, corresponding to the lesser curvature, on the posterior wall of the stomach, was a circular ulcer of 4 cm. in diameter, with everted edges, suffused with blood, and a dirty fat base formed by the pancreas. The adhesions consisted of strongly developed cicatricial tissue. In the duodenum the mucous membrane was also very much swollen and injected. Further down, the intestine assumed normal appearance again, but immediately below the valve of Bauhini the mucous membrane showed a catarrhal condition, with a marked prominence of the solitary follicles, which were here and there eroded. The mesentery glands were hyperemic and pigmented. The liver and spleen were hyperemic. The pancreas was unusually red, and, as already remarked, covered with a layer of exudate. The kidneys were normal.

This case was at first regarded as chronic gastro-intestinal catarrh, and the entire complex of symptoms, the distention of belly, the tendency to vomit, the foul, slimy stools, the coated tongue and the anorexia appeared to point in that direction. The outbreak of measles threw the more important symptoms, which showed the stomach to be the chief seat of the disease, into the background. The circumscribed pain in the pyloric region and the constant nausea were the chief symptoms which pointed in the direction of the stomach. Very soon a considerable increase in the gastric pain was added and the further symptom of vomiting after all food. Only water, which was taken in very great quantities to quench the thirst, was retained. On the 21st of June a peritonitis occurred, and in the vomitus a few streaks of blood appeared as the forerunners of a more abundant gastric hemorrhage which occurred on the twenty-fifth, and again recurring, produced an enormous collapse with depression of the temperature and rapid death with paralytic pulse. On autopsy the adhesion with the pancreas proved that the ulcer was chronic, which probably first appeared in the second year of life as constant digestive disturbance. The hemorrhage was believed by Reimer to come from the vena-pancreatica because it was so profuse.

Gunz [28] reports as follows:

Sp. Carl, five years old, from Gandenzdorf, near Vienna, was brought to the hospital on June 21, 1860. The child without being obliged to be stinted in his food, or suffering from lack of care, would eat only when pains were taken with him, and never looked like a healthy child. In the last few months his appetite had become very small, he had vomited often both directly after food and some hours after as well. After a time severe, long continued diarrhea came on. All this time he complained of frequently recurring pain in the belly. Physical examination showed his development to be backward for his age, and a high degree of emaciation. The head was strikingly large, the forehead narrow, the hind part of the head very much developed and its transverse diameter considerable. The eyes were sunken. The skin was brown; subcutaneous fat little, dry on the belly. A fold of skin on being taken up remained. There was slight dullness on percussion on the right, behind in the middle of the scapula, and auscultation showed a somewhat rude respiration. The belly was sunken, not tender anywhere; liver and spleen not enlarged; the cervical and inguinal glands enlarged, the urine and stools normal. He was given barley coffee in the morning and evening, and a soup with bread and milk for dinner. He took only the liquid food. He vomited the milk unchanged directly after taking it, with choking and belching of a tough glairy mucous, sometimes streaked with blood, and then the more solid parts of his food followed. Sour milk was then ordered and well borne.

On the twenty-fourth the vomiting ceased, and the following night he had an abundant discharge of consistent gray feces; on the twenty-fifth, fever with pulse 160; sighing respiration; redness and swelling of the tonsils; difficult deglutition; redness of the face and neck; swelling of the spleen, and finally an eruption of scarlatina. On the twenty-ninth the eruption faded, the tongue became covered with aphthæ, and the gums ulcerated. The patient refused all food, took only water and complained of pain in the pit of the stomach, increased by pressure. Vomiting did not return. The scarlatina faded and on the night of July 1 there were three very copious coffee-ground stools, and at 5 A.M. he died of exhaustion. Diagnosis during life was made of scarlatina, chronic hydrocephalus and perforating gastric ulcer.

Autopsy twenty-eight hours after death. The stomach lay as follows: the anterior wall directed upward; greater curvature toward the front. After removing the omentum in attempting to lift the stomach up, a broad adhesion of the posterior gastric wall to the transverse colon was found and it tore through the grayish-yellow gangrenous peritoneum, emptying the contents of the stomach. Seen from the inside on the posterior surface of the stomach near the greater curvature 1½ inches from the pylorus, the mucous membrane was gone in a place the size of a gulden; the surrounding gastric wall thickened in folds, the edge of the ulcer from within outward punched out, the shape of the ulcer an ellipse corresponding to the longitudinal axis of the stomach.

Eross [18] gives the following case:

In the Pest Armenkinderspital this was the only case in forty-two years in a material of 17,745.

Anna Vidomansky, twelve years old, born in Budapest of poor parents, was admitted March 29, 1882, to the Pester Armenkinderspital. She had had measles and frequent intestinal catarrh in earlier childhood. For one year she had complained of gastric pain which had occurred at irregular intervals and frequently lasted several hours, but without being very severe; sometimes she was free from it for days at a time. These pains, which gave the sensation as of a strong pressure, were thought little of by the careless parents, and they became more frequent in the past six months, but still they did not become unbearable. The appetite was and still remained small; nausea or vomiting was said not to have occurred; the stools were always sluggish, never bloody. The general condition of nutrition kept getting worse.

Three weeks before entrance to the hospital the child had developed an acute miliary tuberculosis and had constant fever, frequent cough, difficult breathing, stitch in side, and she also complained of pain in the gastric region, and now and then vomited. The vomitus was never bloody. The patient spent eleven days in the hospital and during this time the symptoms of acute miliary tuberculosis were strongly marked. There was troublesome dyspnea and a very marked cyanosis so that the skin of the whole body was constantly livid and bluish black. Only the following gastric symptoms were observed: In the gastric and splenic regions at times very heavy pains, which were greatly increased by the least pressure; nausea was observed only one day; vomiting did not occur. The patient took only a little milk and soup; the move-

ments of the bowels were thin, watery (two to five a days), brown, but contained no blood. The autopsy was performed on April 11.

The stomach was in the normal position and like the intestine was moderately contracted. It contained a little slimy, coffee-ground fluid; on its posterior wall were three losses of substance, one the size of a lentil, the other the size of a ten-cent piece. These two losses of substance were circular with sharp edges and reached the submucosa; a thin, brown coat covered their surfaces; the surrounding mucous membrane was slightly swollen and moderately injected. The third loss of substance was also circular, with everted but not scarred edges, the mucous membrane about it being infiltrated and injected. Its diameter was 2.5 cm.; it pierced the entire thickness of the gastric wall connecting with the bursa omentalis. In the latter was a little coffee-ground fluid; there was no appearance of inflammation in the bursa. The mucous membrane of the intestine was slightly injected; in the Peyer's patches were some lentil-sized nodules surrounded by an injected zone and containing cheesy masses.

Diagnosis. — Scrophulosis of the cervical, mediastinal, bronchial and mesenteric glands; subacute tubercular peribronchitis, etc.; round ulcer of the posterior wall of the stomach, and recent perforation into the omental bursa of a maximum diameter of 2.5 cm.

Rufz [12] reports as follows:

A girl of thirteen years; perforation of the stomach in the smaller curvature, following an ulcer, almost two inches broad. The edges were roundish and thickened. The floor was formed of the blackish and thickened serosa. The rest of the stomach was healthy.

Chvostek [13] publishes the following case:

The patient, when first observed, was eighteen years old. The father died an unnatural death twelve years before. The mother still lived and was said to cough much and to have some pulmonary disease. One sister, a year younger, strong, well nourished and perfectly well at the present time, though for several years is reported to have had a similar but not very pronounced disease as the patient under observation. She is now said to be wholly well. The patient was brought up from childhood by others than his parents. It is reported of him that in his fourth year he was a healthy, relatively well-developed child. His disease is said to have begun then. The history of its beginning is as follows:

His foster parents left him, a cold winter's day, to collect wood in the forest. The patient is said, a little while after, to have run after them, clothed only in a shirt. He did not, however, get far, but collapsed with the great cold. It is reported that he was found stiffened and senseless by people who were going by. Immediately afterwards he is said to have been sick for a long time and his present trouble began then with pain in the abdomen, coming on in paroxysms. These pains occurred in the form of attacks, sometimes lasting several, sometimes as many as ten, hours. They were very severe and the patient had with them a feeling of a cramp-like retraction of the lower abdomen. The intensity and duration of these attacks increased in general with the duration of the affection. The abdomen was reported as only at times being sensitive to pressure. The attacks occurred in pauses of different length, sometimes almost every day, sometimes again less frequently. The longest interval between attacks was one year. During this whole time the patient suffered with very great constipation so that he often had no stool for a week.

On Dec. 13, 1880, the patient was taken into the wards of Professor Chvostek and presented the following appearance: The patient is very backward in his bodily development so that one would take him for a boy of eleven years old, if one did not know his age. There is no trace of pubic hair. He is of delicate bone formation, thin, flabby muscles; the subcutaneous tissue is almost free from fat; the skin and the visible mucous membranes are pale; his physical strength is small; the functions of the brain and his cerebral nerves show nothing remarkable, save that the patient has fainting and is oppressed in his head if he remains a long time out of bed. There is a slight venous hum in the neck, which is otherwise not abnormal. The cardiac impulse is in the fourth interspace in the mammillary line, and is of normal strength and area. The cardiac dullness extends from the upper border of the third to the lower border of the fifth rib, and from the left sternal edge to the left nipple. The first sound at the apex is a very little prolonged, otherwise the heart is not abnormal. There is a good percussion resonance over the lung, and rude vesicular breathing. The belly is slightly distended, nowhere sensitive to pressure. Corresponding to the cecum is to be felt a hard but not painful tumor; otherwise, no kind of tumor is to be found in the abdomen. The stomach is moderately distended; the liver and splenic dullness are normal. The urine is pale yellow, clear and without albumin. The movements of the bowels are sluggish. The appetite is moderate. There are no eructations, no heartburn, no vomiting. The temperature is 36.5° C. to 36.8° C.; the pulse 84 to 88.

From the 14th to the 27th of December the condition remained the same; no attack of cardialgia. Dec. 28 to Jan. 25, 1881, in spite of regulating the stools and giving an easily digested food at regular intervals (in the morning, milk, 100 gm. of semmel; at noon, soup and roast veal; at half past five, a veal cutlet) he now frequently has an attack of cardialgia at different times and of different durations. On the 28th, for example, in the night from nine to three in the morning; on the 4th of January, one attack, from twelve at night till nine in the morning; on the 5th of January, one attack, from ten to twelve, and another from two to six in the night; on the 10th of January, in the night from two to six; on the twelfth of January from ten to one in the night; Jan. 13, from two to four in the night; Jan. 14, from five in the afternoon till six the next morning; Jan. 18, from ten to two at night; Jan. 21, from twelve in the night till nine in the morning; on Jan. 22, from seven to ten in the morning; Jan. 23, from six to nine in the evening. The attacks lasted from five to fifteen minutes with remissions and the location was in the epigastric region. The quality of the pain was as above indicated. During the attack the epigastric region was very sensitive to pressure. In the intervals between attacks it was so only once, on Jan. 14, there being pain on pressure at the right edge of the ribs at the parasternal line.

On Jan. 26, the appetite was rather poor. He was fed only with milk. Last evening nausea and vomiting of a watery acid-reacting fluid containing blood, sometimes mucus and portions of food. The night was quiet. This morning had a cardialgic attack lasting nearly an hour. The abdomen was a little distended, soft, nowhere sensitive to pressure. From the 27th to the 29th of January neither vomiting, nausea nor cardialgia. On the 29th of January the epigastric and umbilical regions were sensitive to pressure. From the 30th of January to Feb. 12, there was loss of appetite. The patient took only a very little liquid food, and sometimes none. He had at times eructations, heartburn, and also nausea. On the morning of Jan. 30, had a cardialgic attack with vomiting; on Feb. 7 one without vomiting, and on the 11th and 12th, an attack of vomiting with the cardialgia. The vomitus consisted

of a bile-stained, slimy fluid. The patient visibly emaciates and gets more anemic.

From the 13th to the 16th of February, the patient had less pain in the lower part of his chest on eating; no vomiting, no cardialgia. Temperature for those days was 37.4° C., 37.7° C. and 37.8° C. During the night of Feb. 17, had pain about the navel and vomiting. On the 20th and 21st, in the evening and on the 22d at night, cardialgia relieved by injections of morphia. From the 24th of February to March 5, almost daily cardialgia, attack chiefly in the night; large morphine injections do not stop, but simply lessen; with it very frequently eructation, heartburn, and on Feb. 26, vomited as well. The pain usually went somewhat to the left of the navel and spread upward into the right portion; occasionally complained also of pain in the chest.

From the 6th to the 16th of March a little fever, 37.1° C. to 38.7° C., pulse 100 to 120. The patient had in the night all kinds of phantasies and was very restless. Cardialgic attacks come daily, are of considerable intensity, of longer duration, often accompanied by vomiting. They are simply lessened by the morphine injections. The stomach is very much distended, sometimes so that the cardiac impulse is palpable in the third intercostal space. The stomach is only somewhat sensitive to pressure except during the attacks. The emaciation, anemia and weakness have reached a high degree. There is a loud hemic murmur in the heart and a pronounced venous hum.

From the 7th to the 29th of March, no fever. In spite of receiving daily three injections of morphia, the cardialgic attacks are only a little relieved, and but temporarily. The attacks are extremely severe and last a very much longer time; the intervals between them are very short. The patient takes almost no nourishment, vomits only seldom, and gradually collapses and dies on the 29th of March, 1881, in the greatest state of exhaustion and emaciation.

Autopsy. — Stomach very much distended, filling not only the left hypochondrium but the greater curvature, reaching to the umbilicus, pylorus and a part of the pyloric portion lying in the right hypochondrium under the liver. In the stomach, a thin, sour-smelling, brownish fluid. Exactly at the cardia a round ulcer of 3 cm. diameter and ½ cm. depth with edges nearly smooth, wedge shaped and not thickened; its base formed by the somewhat thickened serosa of the left lobe of the liver. The stomach at the place mentioned was adherent to the left lobe of the liver. In the immediate vicinity of this spot the base is so thin over a space the size of a bean that the stomach tore on being handled. The rest of the base extended to the outer layers of the muscularis, or, as in the posterior wall of the end of the esophagus to the adventitia of the latter which is thickened with callous. Near the lower edge of the ulcer on its base are four hard, wart-like nodules the size of a hemp seed. Close above the pyloric valve there is an ulcer, also round, 2½ cm. in diameter with smooth edges and funnel-shaped reforming base. The latter is everywhere smooth, rather firm and white; it is intimately adherent to the head of the pancreas, and the adjoining parts of the latter are interspersed with whitish cicatricial tissue. The opening of the pylorus is so narrowed that it scarcely admits the tip of the little finger; it measured 8 mm. in diameter. The wall of the pyloric portion of the stomach was 5 mm. thick, the chief part affecting the muscularis which was 3 mm.

Diagnosis. — Round ulcer of the stomach at the cardia and pylorus with stenosis of the latter and consequent dilatation of the stomach and muscular hypertrophy.

(To be continued.)

PERICEMENTAL ABSCESS.

BY D. D. SMITH, D.D.S., M.D., PHILADELPHIA, PA.

THE affection here denominated pericemental abscess was first noticed by the author about 1890, and first described by him in a paper read at the Tri-union Meeting of the Virginia State, Maryland State and District of Columbia Dental societies, held at Old Point Comfort, Va., May, 1897. Prior to this all abscesses associated with the teeth and alveolus were styled alveolar abscess; the only exception to this being the occassional use of the meaningless term "blind abscess."

It was not until quite a number of these peculiar tumoric growths found on the roots of teeth — especially between the roots of molars — had been observed and noted that their distinguishing characteristics were made a subject of special interrogation and study.

While treating the putrescent root-canals of a superior left bicuspid in the year 1890, two hitherto unobserved diagnostic conditions came prominently into notice. It was evident that the tooth was associated with an abscess, yet the most persistent efforts to relieve it by treatment through the root were wholly without results; at the same time the previously cleansed and disinfected canals of the tooth remained entirely devoid of infection. Repeated dressings and medication during a period of three weeks failed to develop any odor or to make any impression whatever for the better. At the end of four weeks the tooth was extracted, when the cause of the trouble and the negative results in treatment became apparent. Lodged in an irregular depression of the root, formed by a slight, sharp bend, about one quarter of an inch from the apex, was a glandular, fibrous tumor of the size of an ordinary pea, covered with globules of pus. The base of this tumor, or abscess, was relatively large and strongly atached to the pericemental membrane. It was entirely independent of the pulp and canals, having no communication with them whatever, either at the basal attachment or at the apex. I remember well, that in reciting this feature of the case at the meeting referred to, several who took part in the discussion refused to believe that such conditions could exist.

In the dawning of my observation of these pathological conditions, the recognition of them was so confused and imperfect — for in the beginning only chronic cases were apprehended — that it required several years to differentiate them from the ordinary alveolar abscess.

The observation and conduct of an *acute* case, in the spring of 1895, developed the missing diagnostic links, opened the way to a more perfect understanding of the etiology of the trouble, and suggested the nosology we have adopted.

This case is of peculiar interest, and is here cited in the hope that it may serve to fix the special pathognomonic features of the disorder. It was in connection with a second left upper molar, a tooth of typical formation, in the mouth of a young M.D. — a mouth marked, because of virulent infection on all surfaces of the teeth.

The patient presented rather hesitatingly, complaining of an uneasy sensation only, which he hardly classed as pain, but which he located without hesitation in the offending tooth. Examination disclosed no diagnostic symptoms except a very slight loosening of the tooth and a barely distinguishable response to tapping and pressure. There being no evidence of periosteal irritation, and the pulp being alive, I was disposed to regard the complaint as having origin more in the imagination than in a real pathological state. Following an application of tincture of iodine to the gum over the affected tooth, the case was dismissed with the suggestion that the pain was probably due to some unusual or misdirected pressure in biting.

The next day the patient returned, with local symptoms equally obscure; there was little evidence of inflammation, no swelling, no decided pain on pressure. The most prominent feature of the case at this stage was the feeling of apprehension, the decided conviction of the patient that there was something wrong with that particular tooth.

The case was a regular daily visitant for about eight days. During the first five days no strongly marked diagnostic features developed, but it excited interest, and not a little anxiety. The treatment consisted of external applications only, the quieting effect of which seemed to be most evanescent. Neither heat nor cold applied directly to the tooth and gums gave rise to any unusual sensations of pain or relief. There was no appreciable swelling, no marked periostitis or other evidence of the inflammation save the pain; this had become continuous, and was definitely located *in the tooth*.

On the fifth day a diagnosis of acute pericemental abscess was made. The tooth had become more loose and perhaps more painful; it responded more acutely to tapping and pressure, but the pulp was deemed to be alive. To assure myself that it was not implicated in the trouble, I decided upon devitalization.

And here parenthetically I desire to put on record a protest against much that has been written in disparagement of arsenic for the devitalization of pulps, and present the one proper method for using this valuable agent.

Although wholly contrary to accepted teachings and practice, the *arsenical paste* — white arsenic, morphia acetas aa, creosote q. s. — should *never* be placed in contact with pulp tissue; this application should always be made to intervening vital dentin.

The cavity in the tooth in which the application is to be made should be so shaped and arranged that the arsenic shall be securely confined in contact with vital, sensitive dentin only. There should be no possibility of its escape to other mouth tissues, either through the confining filling or around the margins of the cavity. If the cavity of decay cannot be made to securely confine the arsenic — and very frequently it cannot — or if it is desired to destroy the pulp in a sound tooth, a special cavity or large drill-pit should always be made *in another part* of the tooth, one in which the arsenic can be perfectly confined. The application may be made in a cavity remote from the pulp with perfect assurance, provided it is secured there in contact with sensitive dentin (temporary gutta-percha stopping is the best confining medium).

It is placing the arsenic upon living pulp tissue that induces the pain, and it is the escaping of the arsenic from the cavity to the pericementum and gums, through or around the confining filling, that has been and is the cause of all supervening troubles — gum inflammations, alveolar absorption and necrosis — which result from the use of this agent.

Manipulation in accordance with the method suggested will insure painless and perfect devitalization in any tooth in from twenty-four to seventy-two hours, and that with no possible systemic injury, neither inflammatory manifestations in any contiguous tissues.

Drilling through a small crown filling into the dentin, the tooth-bone was found in an exalted state of sensibility. Assured of my diagnosis, I determined, if possible, to reach the seat of the abscess and evacuate the pus in the hope of effecting a cure. An arsenical application was accordingly made to the dentin, which so perfectly destroyed the pulp that its removal was effected within thirty-six hours. This operation produced no disturbance, neither was there any incident following it. The removal of the pulp and dressing of the roots had no appreciable influence on the abscess symptoms; the soreness of the tooth, the continuous (not throbbing) pain, and the mental disturbance — a feeling of apprehension — continued unabated. I next drilled entirely through the crown, reaching the alveolus at the point which extends down between the roots. This operation was very disappointing in that it failed to evacuate any pus or to develop any odor. The third day after the opening was made upon the alveolus, there appeared unmistakable signs of infection in the left antrum. Unwilling to risk further treatment, the offending molar was extracted, when the cause of all this trouble became apparent. Just above the opening which had been made with the drill, and closely adherent to the inner side of the distal buccal root, was the peculiar but well-developed lobular sac of the abscess, with small globules of pus disseminated over its surface. The night following the removal of the tooth there was a copious discharge from the antrum through the left nostril. An opening was at once made through the alveolus into the antrum and treatment instituted through it. The antral cavity was syringed twice daily with phénol sodique, diluted about one half with water, and at the end of two weeks the case was discharged entirely well.

This acute case should possess general interest for the profession, not alone because it presents the distinguishing peculiarities and diagnostic symptoms of this affection, but more because it discloses the serious nature of the malady and points to some of its usual but unrecognized complications.

It is manifest that the pathological condition we are discussing is not only far more common than has hitherto been suspected, but that the infection resulting from it is the occasion of many grave systemic diseases as yet unsuspected. It is a condition which may be readily diagnosed when in a state of activity, but when chronic and apparently inert, it may be difficult of recognition. In the guise of innocent inactivity it gives rise to perpetual infection, and frequently arouses most serious systemic maladies, conditions far more to be dreaded than its most aggravated local expressions.

During the ten years which have followed the treatment of the case cited I have seen and treated a goodly number of these abscesses, both acute and chronic, but never with encouragement or pronounced success. One of the former occurred in my own mouth in connection with a maltreated, split molar, which eventuated in an obstinate, double antral infection. Another — chronic — illustrated in this article, No. 3, was the occasion of a grave head trouble — a burning

pain under the scalp, attended with exhaustion and despondency. These conditions were immediately relieved through extracting the tooth. No. 4 was the cause of the development of a severe double antrum infection. No. 5 was the occasion of a marked condition of malaise, attended with mental depression and hallucinations. In the two latter cases, extraction of the offending teeth afforded immediate and pronounced relief; the antrum trouble progressed rapidly to complete cure, and the malaise and mental depression to complete systemic restoration.

In but two instances, where pericemental abscess has been surely diagnosed, has there been any prolonged effort to retain and preserve the tooth. In these cases — both teeth superior molars — the abscesses have extensive basal attachment, which supplants and occupies the territory on the inner surface of the roots at their junction with the crown. These abscesses are quiescent, and have no perceptible pus discharge; while the teeth are somewhat loose, they are in use in mastication, and occasion no complaint. In both instances the teeth were experimentally retained; there is absolutely no hope of bettering their condition by treatment, either through surgical removal or lymphatic absorption.

The histological researches of the late Dr. Formad, of the Medical Department of the University of Pennsylvania, as revealed in a private letter under date of Jan. 20, 1898, fully confirm the status ascribed this pathological condition as a new discovery; they also stamp its nosology as correct, and reveal why it may, and does, occur indiscriminately on teeth with and without vital pulps. Caused as it is by an irritant on the outer surface of the pericemental membrane, it is wholly unaffected by any known method of treatment, either through the root, by external applications, or by surgical interference.

The diagnostic symptoms of pericemental abscess are distinct and plain when once recognized. In acute cases the first manifestation is pain; not severe, but continuous, and located by the patient in the offending tooth. Nervous apprehension on the part of the patient is, I believe, always incident to it. The trouble is liable to be confounded with periodontitis, but is readily distinguished from it. In acute pericemental abscess, there are no marked inflammatory symptoms in the alveolar and gum tissue; no swelling, no acute pain in response to tapping or pressure; no marked distinction between hot and cold applications, and no relief afforded by any local medication. The loosening of the tooth, slight in the beginning, becomes more and more marked as the case progresses. It will thus be noted that while this affection has been, and is, liable to be confounded with periodontitis, all the diagnostic symptoms (except the pain and the response to pressure) in the former, are exactly the opposite to those in the latter.

Chronic pericemental abscess is distinguished by absence of pain and all other active inflammatory symptoms. Occasionally, there is some hypertrophy of the gum tissue, but no marked swelling, neither soreness of the tooth on pressure. The tooth can generally be used in mastication without special discomfort. The escaping pus is discharged at the edge of the alveolus, between the alveolus and the gum. The point of egress may be distinguished by a peculiar lip, or mouth-like opening, marked by a circumscribed turgescent condition of the gum tissue,— a condition wholly unlike the fistulous opening of an alveolar abscess.

Any tooth having a pericemental membrane, and a conformation to accumulate infection, may be the subject of pericemental abscess. Molars with large, bell-shaped crowns and constricted necks, because of their shape and location in the mouth, are more especially liable to it.

No. 1 No. 2

Two views of original specimen forwarded to me in autumn of 1897, by a practitioner in Connecticut, unable now to recall his name. Histological report made by Dr. Robt. Formad, Med. Dept. U. Pa. See "Abscess upon Teeth with Living Pulps." — *Kirk, Cosmos*, August, 1898. These cuts made by *Cosmos* press, 1897. Used by Dr. Kirk, the editor, only, to illustrate two of his papers: the first mentioned above; the second, "Pericemental Abscess," before N. Y. State Society, May, 1900. The latter paper ascribes the discovery of P. A. to Dr. Darby, and the making of the photograph to Dr. Cryer; see *Cosmos*, Nov., 1900, p. 1149.

No. 3

Right sup. 3d molar; the occasion of serious head trouble: extracted July 4, 1904.

No. 4

Left sup. 2d molar; the occasion of serious double-antrum infection: extracted July 21, 1904.

No. 5

Right sup. 3d molar; the occasion of malaise and nervous depression: extracted April 26, 1904.

The conditions preceding its development are neither systemic inclination through "aberrant nutrition," nor a circulation floating a so-called gouty poison. It is not a result of infection from putrescent pulp tissue, nor from the prolific gaseous emanations resulting from nitrogenous decomposition within the tooth. Infection from such sources finds expression on the *inner* surface of the pericementum near the apical foramen, and eventuates in the ordinary alveolar abscess. The nucleus of this inflammation, and the resultant tumoric abscess, is in touch with some stagnant, septic irritant upon the tooth or teeth, the external surface of the pericemental membrane alone being involved.

The amount of pus disengaged from these

abscesses is relatively small. It is not confined within a sac or limiting membrane, as is generally the case with an ordinary alveolar abscess, but it is sparingly distributed over the irregular surface and within the folds of the tumor-like body which forms the abscess.

The pus from a pericemental abscess never forces an outlet through the alveolus and gums in the form of a fistulous opening, neither does it come into the pulp canals through the apical foramen. It escapes at the edge of the alveolus, at the free margins of the gums — commonly between root bifurcations — or it may be found oozing around one particular root of a molar; frequently it is the palatine root of a superior molar or the distal root of a lower molar. Turgidity of the gum tissue at the point of egress marks the exact location of the abscess. No pus whatever can be obtained from a pericemental abscess in its earlier or acute stage. Even in chronic states the discharge is seldom profuse in connection with a single-rooted tooth. In a goodly number of cases where the abscess had assumed a hopelessly chronic form, I have found pus in large quantities and very offensive, in a few instances in connection with lower bicuspids, but more especially around lower molars. The incessant inflammatory action induced by this abscess not only increases its own substance, but it loosens the tooth, and through necrotic absorption forms, enlarges and deepens cavities and pits in the alveolus which become cesspools of pus, prolific in infection.

The nerve centres, from my observation, are the special points attacked by the pyemic toxins from this abscess. Depression of spirits, loss of appetite, enfeebled digestion, malaise, headache, tonsular and pharyngeal inflammations, are the direct outcome. They also become the exciting cause of many far more serious troubles, both acute and chronic; among these we have found neurasthenic, gastric, gastro-intestinal, rheumatic and renal complications, including diabetes and albuminuria. From all these maladies we have not only afforded relief but effected cures by relieving septic mouth conditions, complicated with pericemental abscess.

Since the publication of the article on "Systemic Infection Due to Natural Teeth Conditions," in January, 1903, there have appeared two papers by medical men, of marked significance; one by Dr. Robert T. Morris, of New York City, entitled, "Infections of the Lymph-glands of the Mouth and Throat," and the other, "Bucal Antisepsis," by Dr. E. Dunogier, Bordeaux, France. The former makes this significant and commendable remark: "We are finding at my clinic very many more infections proceeding from the teeth than are found in some other clinics," and then goes on to say, "One class of infections, very dangerous ones, have been frequently overlooked by dentists: these are infections following the removal of abscessed teeth. Patients die and the cases are not reported; they come in to be treated for pneumonia. There are patients dying this minute in this city from the result of having abscessed teeth extracted while in course of acute infection."

Dr. Dunogier speaks of "dangerous systemic results accompanying purulent conditions about the oral cavity," and recites the case of a "young man aged twenty-one, a sufferer from albuminuria for over six years," who was cured through, what seems to me, very indifferent attention to the teeth and mouth condition, which had previously been wholly neglected. To prove positively "whether the mouth-infection had been directly concerned in the causation of albuminuria, the patient was directed to abandon temporarily all dental care. This was followed five days afterward by the reappearance of the albumin, and thus the original diagnosis was definitely established." Another case of a diabetic is noted by Dr. Dunogier with similar treatment and like favorable results.

When the day shall dawn when medicine and dentistry shall fully recognize the human mouth as the field of most prolific and dangerous infection and truly differentiate its pathologic conditions, the prevention of disease, the relief of suffering and the lengthening of the average of human life will be accelerated a hundred fold.

If it is true, as Dr. Morris says, that in dentistry and surgery, "we find whatever we are looking for," how important that we keep our eyes fixed on actual conditions. Actual conditions do not reveal that the extraction of a tooth with an ordinary alveolar abscess was ever the precursor of pneumonia. Pericemental abscess, with its pyogenic infection and enfeebling results, has undoubtedly been a predisposing factor in many cases of pneumonia. How important that medicine and dentistry distinguish between the two conditions!

Mouth conditions would appear very different to both professions if they could be viewed in the light in which they really exist. We do not need the hypothetical conditions of "thrombi" and "embolic infection," said to be induced by equally hypothetical "crushing of cancellous bone structure in tooth extraction," for the induction of systemic infection. Infection is found as a natural exudate along the whole linear gum margin about the teeth; it is found upon the twenty to thirty square inches of tooth surface in every mouth, between and under the teeth, and in crypts and pockets about roots. It is found in nasal passages, upon the tongue, on tonsils and pharynx. There is infection in the breath, in salivary and mucous sediment, in decaying food remains and in mouth débris of every kind. Add to these *normal* infectious states, the many serious pathological mouth conditions, — decay in the teeth, putrescent pulp tissues, the retrograde metamorphosis of devitalized teeth, alveolar abscess, alveolar pyorrhea, and, more than all, the affection we are considering, pericemental abscess, — and we have a combination of infection in the human mouth which should startle the community, and rouse to highest intensity the interest of medicine and dentistry alike.

The question may arise, Is pericemental abscess a state of pyorrhea? My answer is emphatically in the negative. Pericemental abscess and alveolar pyorrhea are often associated in the same mouth, and they may have similar origin, but they are separate and distinct affections. Pericemental abscess develops from a point of irritation on the external surface of the pericementum, usually some inaccessible depression in which the infection lodges and is confined. It is generally found between the roots of double or multi-rooted teeth, or it may be at the end of a tooth having fused roots. Alveolar pyorrhea is as commonly found in connection with single as with double or multi-rooted teeth; when associated with molars, the infection is between, rarely, if ever, under them.

Pericemental abscess is a characteristic tumoric growth, generally between the roots of teeth; alveolar pyorrhea is an inflammation beginning in the pericementum at the free margin of the gums; in its progress it destroys cemental and alveolar tissue, uncovers portions of the roots of teeth, develops pus, and imparts a characteristic odor to the breath. This inflammation leaves in its train, not degenerate, sero-fibrous *growths*, but broken-down tissue remains, calcic sedimentary matter, and other débris which destroys permanently all vital relations between the uncovered portions of the affected roots and the alveolus.

Pericemental abscess, virulently infectious, is incurable, except through loss of the tooth.

Alveolar pyorrhea, often equally infectious, is wholly amenable to rational surgical treatment.

A COMPARISON OF ANESTHETICS. RESULTS FROM CHLORETONE.

BY THEODORE C. BEEBE, JR., M.D., BOSTON.

THE following observations were made through the courtesy of Drs. Munro and Bottomley, and the kindly aid of the surgical house officers and nurses of the Carney Hospital. The writer has endeavored to form, by the aid of statistics, some general ideas as to the relative values of the more common anesthetics used as preliminaries to ether in profound anesthesia. The attempt has also been made to discover in what manner the patients' recovery from ether narcosis may be made more endurable. The anesthetics used were nitrous oxide, ethyl chloride, and anesthol. Enough has been written by recent writers as to the method of administration, and the effects of these drugs, so that it is thought best not to go into these details here. Statistics were obtained from 214 cases; in 65 of which gas and ether were used, 34 ethyl chloride and ether, 110 anesthol and ether, and 5 in which anesthol was used for the full period of narcosis. For the administration of gas the Bennett inhaler was used. Ethyl chloride and anesthol were given in the usual manner described by recent writers. Ether was given by the Blake ether inhaler. Hypodermic injections of morph. sulph. gr. $\frac{1}{8}$ to $\frac{1}{4}$, and atropin sulph. gr. $\frac{1}{150}$ were used as indicated, with the commonly known good results. It may not seem out of place to mention here that those accustomed to watch the pupils are sometimes misled by partially contracted pupils due to the action of morphine. The action of chloretone on the nausea and vomiting after ether was observed in 164 cases. The cases operated upon have been the usual run of a hospital service.

Nitrous oxide was given to patients ranging from eight to sixty-seven years of age, ethyl chloride from thirteen to sixty-three, and anesthol from six to eighty-seven years. In cases younger than six years, ether alone was used. Out of the total of 214 cases, 102 were men, 103 were women, and 9 were children under fifteen years. The pulse rate and respirations were recorded before the anesthetic was started, and again as soon as deep narcosis was established. An average increase of pulse rate per minute was observed as follows: gas 14, ethyl chloride 20, and anesthol 12. The average increase in the number of respirations per minute ran almost in direct ratio to the pulse: gas 7, ethyl chloride 11, and anesthol 6. The shortest periods in which anesthesia was produced were: gas and ether 1 min. 10 sec., ethyl chloride and ether 2 min. 40 sec., and anesthol and ether 2 min. 10 sec. The average time was: gas 2 min. 30 sec., ethyl chloride 4 min. 30 sec., and anesthol 7 min. 30 sec. This does not represent the time in which the patient was made unconscious, but the time when he was ready for operation. The cases in which anesthol alone was used throughout were: (1) resection of rib, 22 min.; (2) amputation of thigh, 1 hour, 10 min.; (3) ovarian cyst, 45 min.; (4) cystoscopy, 40 min.; (5) cholecystotomy, 1 hour. As all cases were prepared on the table, the period of anesthesia was longer than it would otherwise be. Cyanosis to a greater or less degree was noticed in 12% of the cases, more often with gas than with the other drugs. Most of these cases were alcoholics. The stage of excitement was much less marked with anesthol, next with gas, and most with ethyl chloride, although there was less in all than with ether alone. An increase in the amount of albumin, varying from the slightest possible trace to a large trace, and clearing up within a few days, was found in 16 cases as follows: after gas 9, after anesthol 7, after ethyl chloride 0. An increase of uric acid was found in practically all cases.

Expense. — Nitrous oxide and anesthol are cheaper than ethyl chloride. Gas costs about 4 cents per patient, anesthol $3\frac{3}{4}$ cents, and ethyl chloride 12 to 18 cents, depending upon the quality used. The relatively small number of cases observed with ethyl chloride was on account of the expense.

Odor. — Nitrous oxide is odorless. The slight garlicky odor persisting after ethyl chloride makes that drug less agreeable than anesthol to most patients.

Pulse and respiration. — Anesthol causes least disturbance of pulse and respiration rate, gas next, and ethyl chloride most. Gas is the

quickest to produce its effect, ethyl chloride next, and anesthol last. On the other hand, profound anesthesia may be maintained with safety for a greater time with anesthol than with either of the other two drugs. It seems to be especially indicated in cases with either cardiac or pulmonary difficulty. During administration there is the least struggling with anesthol, next with gas, and most with ethyl chloride.

To sum up the relative values: There does not seem to be any class of cases in which ethyl chloride has any advantage over either gas or anesthol, while its expense is a distinct disadvantage in a large clinic. Again its record for safety has not proved equal to gas and anesthol. As between the last two mentioned, each has its special recommendations. In a large clinic where speed is required gas is by far the more desirable. The absence of odor also tends to make gas the more popular. In alcoholic or powerful individuals who take gas poorly, however, or where there is some heart or lung complication, anesthol has proved a very efficient adjunct. The writer will not consider the uses of the three drugs in minor surgery.

The prevention or lessening of nausea and vomiting after ether is a matter in which there has been very little advance in recent years. The writer has endeavored to approach this subject in two ways: first, by limiting the amount of ether used, second, by the action of chloretone. The cone has been kept away from the patient as much as possible, and the total amount of ether made as low as possible. Chloretone in amounts from 5 to 30 gr., given in 5gr. capsules, has been used in 164 cases. The best results have been obtained in adults with 10 gr. doses given twenty to thirty minutes before starting the anesthetic. If given inside of twenty minutes the patient is liable to vomit soon after the anesthetic is started, thereby losing all the benefit of the drug. Out of the total 214 cases, 119, or 55½%, were conscious of no nausea after ether. Of these 119, 97, or 81½%, had had chloretone, while 22, or 18½%, had had none. Sixty-seven out of 164 were nauseated in spite of the chloretone, while 28 out of the 50 who had had no chloretone were also nauseated. One hundred and twenty-eight out of 214 cases, or 60%, were conscious of no vomiting. Of these 128 cases, 105, or 82%, had had chloretone, while 23, or 18%, had had none. Fifty-nine out of 164 who had had chloretone vomited, while 27 out of the 50 who had had none vomited. It is only just, however, to say that 18% of those who had had chloretone vomited once or twice before the return of consciousness. Of the abdominal cases, 72 had chloretone; 35 were conscious of no nausea, and 37 were conscious of no vomiting, practically 50%. Out of 9 inguinal hernias 7 had no nausea or vomiting. Of 13 gastro-enterostomies 7 had no nausea, and 8 no vomiting. Of the 214 cases 9, or 4½%, complained of headache after the ether recovery, divided between general and frontal. Seven of these had had chloretone. Five cases had some cough after the operation.

While chloretone has not always proved a reliable specific in preventing nausea and vomiting, it has been a great aid. The patients make a quicker recovery than when nothing is given. Vomiting, when present, is likely to take place before the return of consciousness, so that the patient has no distinct recollection of the occurrence. In more than half of the cases there was no conscious nausea or vomiting, a great benefit not only to the patient, but to the nurses and friends. The writer believes it to be well worth a good trial.

EXAMINATION OF PLEURAL FLUIDS WITH REFERENCE TO THEIR ETIOLOGY AND DIAGNOSTIC VALUE.

BY PERCY MUSGRAVE, M.D., BOSTON.

(Continued from No. 13, p. 352.)

CASE 35.— J. P. K., fifty-three, m., Irish, janitor railroad station. May 14, 1903. F. H. negative. P. H. unimportant. Habits good. Pres. ill. — For four months intermittent pain in left side of chest; slight cough and expectoration. For three weeks dyspnea, and for two weeks orthopnea. Loss of weight. Chilly at times. Phys. exam.— W. D. and fairly N. Fair color. Heart displaced to right. Lungs: left pleural effusion; bronchitis on right. Temperature fluctuated between 99.5 and 102½, gradually becoming lower; pulse slightly irregular; arterial thickening. Considerable edema feet and legs. Blood: whites — 16,000. *May* 15, *chest tapped, fluid:* amount 960 cc., slightly hemorrhagic, alkaline, alb. 3.5%, sp. gr. 1,018: sed.: lymphocytes 97.2%, polynuclears .8%, endothelium 1.6%, large mononuclears .4%. Cultures: no growth. Pig inoculated; autopsied June 19, 1903; negative. Diagnosis from fluid: primary tuberculous pleurisy. Blood: whites — 10,400. Sputum: no tubercle bacilli found; four examinations. Steady improvement; May 22, discharged much relieved. Clinical diagnosis: pleurisy with hemorrhagic exudation. Bronchitis. Tuberculosis (?). Displaced heart with adhesions.

CASE 36. — J. J. S., thirty, m., American, laborer, Oct. 19, 1903. F. H. good. P. H. unimportant. Habits: tobacco to excess. Pres. ill. — For four weeks pain on deep inspiration, increasing steadily; slight cough; small amount of sputum; no chills. Phys. exam. — W. D. and N. Color good. Heart negative. Lungs: right pleural effusion, slight bronchitis left lung; examination otherwise negative. Temperature 101 at entrance, falling to normal in four days. Pulse averaged 70 to 85; respirations 20. Blood: whites — 7,900. *Oct.* 23, *chest tapped, fluid:* amount 19 oz., straw colored, small coagulum, sp. gr. 1,022; sed.: lymphocytes 87%, polynuclears 10%, endothelium 1%, large mononuclears 2%; marked number of red corpuscles. Cultures: no growth. Inoscopy: negative. Pig inoculated; autopsied Dec. 6; negative. Diagnosis from fluid: primary tuberculous pleurisy. No sputum. Steady improvement. Oct. 30, discharged much relieved. Clinical diagnosis: pleurisy with effusion.

CASE 37.— H. H. P., twenty-nine, m., American, conductor. Nov. 26, 1903. F. H. negative. P. H. unimportant. Habits good. Pres. ill. — Twelve days malaise, headache, anorexia, for four days pain in epigastrium shifting to back, relieved by left lateral decubitus. Phys. exam.— W. D. and fairly well nourished. Good color. Heart negative. Lungs: left pleural effusion; examination otherwise unimportant. Blood: whites

— 11,800. Temperature 102 at entrance, falling gradually to normal on the eleventh day, with the exception of one exacerbation on the seventh day. Pulse averaged between 80 and 90; respirations 20 to 25. No sputum. *Nov.* 27, *chest tapped, fluid:* amount 105 oz., straw colored, large coagulum, alb. 4%, sp. gr. 1,020; sed.: lymphocytes 96%, polynuclears 3%, endothelium 1%; moderate number of red corpuscles. Cultures: no growth. Inoscopy: negative. Pig inoculated; autopsied Jan. 1, 1904; negative. Diagnosis from fluid: primary tuberculous pleurisy. Steady improvement. Dec. 8 discharged well. Clinical diagnosis: pleurisy with exudation.

CASE 38. — A. A. C., eleven, s., American, school. Jan. 29, 1904. F. H. good. P. H. unimportant. Habits good. Pres. ill. — For two months gradually increasing malaise and cough; no sputum; no dyspnea. Phys. exam.— W. D. and fairly W. N.; slightly pale. Heart negative. Lungs: signs of right pleural effusion; examination otherwise negative. Temperature remained below 100 most of the time, but on several occasions it reached 101 and over. Pulse rate irregular in waves, averaging about 90; respirations averaged between 25 and 30. Blood: whites — 6,700. No sputum. *Jan.* 30, *chest tapped, fluid:* amount 34 oz., considerable coagulum; sed.: count of 300 cells, lymphocytes 98%, endothelium 1%, large mononuclears 1%; moderate number of red corpuscles. Inoscopy: negative. Pig inoculated; autopsied March 8, 1904; negative. Cultures: no growth. Diagnosis from fluid: primary tuberculous pleurisy. Gradually improved; Feb. 27, discharged much relieved. Clinical diagnosis: pleurisy with effusion.

CASE 39. — A. J. D., forty-nine, m., American, sign painter. March 29, 1904. F. H. negative. P. H. unimportant. Habits good. Pres. ill. — For five weeks has noticed growth of lumps in neck, axillæ and groins; has lost color and strength. Abdominal distention, wheezing in chest, no cough, dyspnea. Phys. exam. — W. D. and fairly W. N. Marked enlargement of glands in axille, groins and neck. Heart negative. Lungs: left pleural effusion; signs of slight effusion at right base. Abdomen, no signs of ascites. Hepatic and splenic enlargement; slight edema both legs. Temperature not above 99.8; pulse averaged 90; respirations 20 to 25. Blood: whites — 711,900; reds — 3,020,000; hemoglobin 20%. Differential count of 500 cells showed 500 lymphocytes. *April* 4, *left chest tapped, fluid:* amount 16 oz., orange yellow, very slight coagulum, alb. 4%, sp. gr. 1,018; sed.: marked amount, count of 300 cells, lymphocytes 95%, polynuclears 1%, endothelium 1.4%, large mononuclears 2.6%; marked number of red corpuscles. Cultures: no growth. Inoscopy: not sufficient coagulation. Pig inoculated; autopsied May 21, 1904; negative. Diagnosis from fluid: primary tuberculous pleurisy. March 9, discharged unrelieved. Clinical diagnosis: lymphatic leukemia. Died April 23. Autopsy: lymphatic leukemia. Chronic left pleuritis.

CASE 40.— M. P. McC., twenty-three, s., English. March 25, 1904. F. H. Mother and two sisters died with chest symptoms, suggestive of tuberculosis, within eighteen months. P. H. negative. Habits: periodical alcoholic excess. Pres. ill. — For three weeks pain in right side, increased by deep inspiration. Cough; marked morning expectoration. Occasional chilly sensations. Night sweats. Increasing dyspnea with diminution of pain. Phys. exam. — W. D. and N. Color good. Heart negative. Lungs: right pleural effusion; examination otherwise negative. Temperature 103, gradually falling in the course of two weeks, and then averaging between 99 and 100. Pulse averaged 90; respirations 25 to 30. Blood: whites — 7,200. Sputum: no tubercle bacilli found on repeated examinations. *March* 30, *chest tapped, fluid:* straw colored, slight coagulum; sed.: slight, lymphocytes 92%, polynuclears 8%; few red corpuscles. Cultures: no growth. Pig inoculated; autopsied May 18; negative. Inoscopy: too little clot. Diagnosis from fluid: primary tuberculous pleurisy. Patient improved steadily; discharged April 15, much relieved. Clinical diagnosis: pleurisy with effusion.

CASE 41. — L. C. (female), thirty, m., American, housewife. March 19, 1903. F. H. negative. P. H. unimportant. Habits good. Pres. ill.—Two weeks ago, eight days after birth of child, taken with fever and headache, slight cough, pain in right chest, worse on deep inspiration. Phys. exam. — W. D. and N. Color good. Heart negative. Lungs: right pleural effusion. Abdomen negative. Temperature chart very irregular with large diurnal excursions of the temperature. At the end of a month temperature averaged normal with slight evening exacerbations, always below 100. Pulse chart irregular, roughly following the temperature; respirations averaged below 30 on several occasions, however, reaching 40. Blood: whites — 7,400. Sputum, small amount; no tubercle bacilli. *March* 19, *chest tapped, fluid:* amount 200 cc., alb. 3.6%, sp. gr. 1,021; sed.: lymphocytes 94%, polynuclears 1%, endothelium 2%, large mononuclears 3%. Cultures: no growth. Pig inoculated; autopsied April 18, 1903; negative. Diagnosis from fluid: primary tuberculous pleurisy. Slow improvement; April 24, discharged well. Clinical diagnosis: pleurisy with effusion.

CASE 42. — C. G. (female), thirty, s., Italian, farm laborer. June 2, 1903. F. H. and P. H. not taken. Pres. ill. — Sick for two weeks, pain, cough, chills and fever, dyspnea. Phys. exam. — W. D. and N. Good color. Heart negative. Lungs: left pleural effusion; examination otherwise negative. Temperature at entrance 100, after that not above 99.5 at any time. Pulse 110, after the tapping between 90 and 100; respirations 40, after tapping between 25 and 30. Blood: whites — 9,000. *Chest tapped, fluid:* amount 1,920; cc., straw colored, considerable coagulum, alb. 3%, sp. gr. 1,022; sed.: lymphocytes 90.4%, polynuclears 9.6%; few red corpuscles. Cultures: no growth. Pig inoculated; autopsied July 18, 1903; negative. Diagnosis from fluid: primary tuberculous pleurisy. Fluid re-accumulated in left chest and 48 oz. were removed on June 12. Patient had been up and about the ward for five days and was discharged much relieved June 13. Clinical diagnosis: pleurisy with exudation.

CASE 43. — M. T. (female), forty, m., Russian, housewife. July 11, 1903. F. H. and P. H. negative. Habits good. Pres. ill. — For three weeks pain in right chest on deep inspiration, pain gradually increasing until one week ago. For one week cough with slight white expectoration, pain diminishing with onset of palpitation and dyspnea which gradually increased. Orthopnea. Phys. exam. — W. D. and N. Some pallor. Heart negative. Lungs: right pleural effusion; examination otherwise negative. Temperature for two days between 99.5 and 100, otherwise normal. Pulse for five days between 90 and 100, after that between 70 and 80; respirations 30 to 35 for a week, then between 20 and 30. Blood: whites — 5,400. Sputum; no tubercle bacilli found. *Chest tapped, fluid:* amount 60 oz., straw colored, considerable coagulum, alb. 1.3%, sp. gr. 1,020; sed.: lymphocytes 96%, polynuclears .8%, endothelium 2.4%, large mononuclears .8%; marked number of red corpuscles. Cultures: no growth. Pig inoculated; autopsied Aug. 13; negative. Diagnosis from fluid: primary tuberculous pleurisy. Patient im-

proved steadily and was discharged much relieved July 24. Clinical diagnosis: pleurisy with effusion.

CASE 44. — B. C. C. (female), twenty-two, s., Canadian, waitress. Feb. 17, 1904. F. H. good. P. H. negative. Habits good. Pres. ill. — For five or six weeks sharp pain in side coming on in sudden attacks, lasting a few moments. Pain diminished, cough developed, headache, malaise, dyspnea. Phys. exam. — W. D. and N. Pale. Heart negative. Lungs: effusion; examination otherwise negative. Temperature at entrance 103, gradually falling to normal at the end of three weeks. Considerable diurnal variation with elevated evening temperature. Pulse 100 gradually falling to 80; respirations 20 to 25. Blood: whites — 5,600, Widal negative. No sputum. *Feb.* 19, *chest tapped, fluid:* amount 64 oz., straw colored, slight coagulum, sp. gr. 1,020; sed.: lymphocytes 92%, polynuclears 5%, endothelium 1%, large mononuclears 2%; marked number of red corpuscles. Cultures: no growth. Inoscopy: too little coagulation. Pig inoculated; autopsied March 25, 1904, negative. Diagnosis from fluid: primary tuberculous pleurisy. Patient gradually improved and was discharged much relieved March 16. Clinical diagnosis: pleurisy with effusion.

CASE 45. — Miss X, thirty-seven, American, professional nurse. F. H. good. P. H. She had nursed tuberculous case for seven months up to six months ago and for the last year, when off duty, she has slept in a room which was formerly occupied by a tuberculous nurse. A year ago physical examination showed a healthy woman. Feb. 29, 1904, consulted her physician on account of the following symptoms: For ten days had pain on deep inspiration in the right chest, disappearing in a few days. It returned, however, in four or five days with increased severity. Morning temperature was 100, some cough, loss of appetite. Phys. examination showed a pleural effusion. Temperature 102, remained at that level for about three weeks. *March* 5, *chest tapped, fluid:* amount 16 oz., color deep orange, slight coagulum, alb. 2%, sp. gr. 1,020; sed.: moderate amount, count of 300 cells, lymphocytes 89½%, polynuclears 5¾%, endothelium 3¼%, large mononuclears 1¾%. Cultures: no growth. Inoscopy: negative. Pig inoculated; autopsied April 18; negative. Diagnosis from fluid: primary tuberculous pleurisy. Patient made a slow recovery. Clinical diagnosis: tubercular pleurisy with effusion.

CASE 46. — Mrs. X. (District case.) Woman about sixty years old, Irish, housework. April 17, 1903. F. H. one son, with whom she lived, died recently of phthisis. Pres. ill. — Slight cough for three months; for about ten days had pain in the chest gradually diminishing; dry cough, increasing dyspnea, and anorexia. Pale; slight cyanosis. Somewhat emaciated. Phys. exam. — Negative except for left pleural effusion. *Chest tapped, fluid:* amount about 1½ pints, reddish yellow, alb. 3½%, sp. gr. 1,021; sed.: almost exclusively lymphocytes, rare endothelial cell and few large mononuclears. Many red corpuscles. Pig inoculated; autopsy negative. Diagnosis from fluid: primary tuberculous pleurisy. Clinical diagnosis: pleurisy with effusion.

CASE 47. — X, thirty-nine, m., American, physician. Dec. 30, 1903. F. H. good. P. H. twelve years ago injury to right chest; eight years ago pleurisy with effusion left chest. Tapped. Habits good. Pres. ill. — Three weeks malaise, slight cough, no sputum, increasing dyspnea, no pain. Phys. exam. — W. D. and N.; color good, heart negative. Lungs: signs of right pleural effusion; examination otherwise negative. Temperature irregular, averaging 99 to 102; pulse 90 to 100; respirations 25 to 35. No blood count made. *Chest tapped, fluid:* amount two pints, dark straw colored, alb. 2½%, sp. gr. 1,022; sed.: count of 500 cells, lymphocytes 95%, polynuclears 1.6%, endothelium 1.8 %, large mononuclears 1.6%; red corpuscles fairly numerous. Inoscopy: negative. Pig inoculated; autopsied Feb. 15, 1904; negative. Diagnosis from fluid: primary tuberculous pleurisy. Clinical diagnosis: pleurisy with effusion, probably tuberculous.

CASE 48. — J. L. B., nine, s., American, school. May 12, 1903. F. H. and P. H. negative. Pres. ill. — Two weeks ago injury to left side, since when there has been pain in the left chest and abdomen, increased by deep inspiration. No cough, no chill, dyspnea since beginning of illness; headache. Phys. exam. — W. D. and N.; good color. Heart not displaced. Lungs: signs of left pleural effusion; examination otherwise negative. Temperature not higher than 101.8, most of the time below 100; pulse averaged between 100 and 110; respirations 25 to 30. Blood: whites — 10,500. *May* 15, *chest tapped, fluid:* amount 480 cc., dark straw colored, slightly turbid, alkaline, alb. 5½%, sp. gr. 1,022; sed.: lymphocytes 95.2%, polynuclears 3.2%, eosinophiles .4%, endothelium 1.2%; red corpuscles fairly numerous. Pig inoculated; died in two days; no cause for death found. Diagnosis from fluid: primary tuberculous pleurisy. Continued improvement; May 21, discharged well. Clinical diagnosis: pleurisy with exudation.

CASE 49.— M.C., thirty-three, m., meat handler. July 28, 1903. (O. P. D.) F. H. negative. Pres. ill. — For three months cough, considerable white sputum, dyspnea. Phys. exam. — Heart not displaced. Lungs: signs of left pleural effusion. *July* 30, *chest tapped, fluid:* amount 1 quart, straw colored, turbid; sediment consists of broken down lymphocytes and polynuclears; difficult to differentiate elements; numerous red corpuscles. Cultures: no growth. Pig inoculated; autopsied Sept. 11; negative. Diagnosis from fluid: secondary tuberculous pleurisy. Clinical diagnosis: pleural effusion.

CASE 50. — F. C., sixty-eight, w., Italian. Dec. 6, 1903. F. H. and P. H. negative. Habits unimportant. Pres. ill. — Cough and dyspnea, with edema of feet and ankles, for four months. Phys. exam. — W. D. and fairly W. N. Lips and ears slightly cyanotic. Pulse tension increased. Palpitation and tortuous artery. Lungs: left pleural effusion. Edema of feet, legs and thighs; temperature sub-normal; pulse averaged about 90; respirations 20 to 25. Blood: whites — 9,500. *Dec.* 7, *chest tapped, fluid:* amount 3 pints, color light orange, slight coagulum, sp. gr. 1,015; sed.: count of 500 cells, lymphocytes 97%, polynuclears 1%, endothelium 2%, large mononuclears ½%; considerable number of red corpuscles. Cultures: no growth. Inoscopy: negative. Pig inoculated; autopsied Jan. 16, 1904; negative. Diagnosis from fluid: primary tuberculous pleurisy. Continued improvement. Discharged much relieved Dec. 15. Clinical diagnosis: myocarditis.

CASE 51.— C. S. H., twenty-nine, m., American, clerical work. Feb. 2, 1903. F. H. and P. H. negative. Habits good, except for occasional alcoholic excess. Pres. ill.— Three days before entrance had chill, nausea, headache, pain in left lower chest, feverish, cough, dyspnea. Phys. exam. — Well developed and nourished; otherwise negative, except for patch of pneumonia at the right base behind. Temperature between 103 and 105 for four days after entrance, followed by crisis. Sputum: typical pneumonia. Blood: whites — 15,000. *Feb.* 14, *right chest tapped, fluid:* amount 20 oz., slightly hemorrhagic, alkaline, alb. 4%, sp. gr. 1,019; sed.: lymphocytes 65%, polynu-

clears 28%, eosinophiles 2%, endothelium 2%, large mononuclears 3%. *Feb.* 16 *hemorrhagic fluid* again withdrawn; lymphocytes 80%, polynuclears 17%, endothelium 1%, large mononuclears 2%. Cultures: no growth. Pig inoculated; died in three days; no cause for death found. Diagnosis from fluid: primary tuberculous pleurisy. Case discharged well from hospital March 2, 1903. Clinical diagnosis: bilateral pneumonia and pleurisy with exudation.

CLASS II.

CASE 52. — W. B., fifty-nine, m., Irish, coachman. Feb. 14, 1903. Previously been treated in hospital for aortic regurgitation. Pres. ill. — Partially broken compensation for four months. Phys. exam. — W. D. and somewhat emaciated. Heart enlarged; signs of myocarditis. Lungs: signs of a moderate pleural effusion, right base. Slight edema both lungs. Temperature not elevated; subnormal part of the time. Blood: whites — 12,600. *Feb.* 15, *chest tapped, fluid:* amount 26 oz., slightly hemorrhagic, alkaline, alb. 2%, sp. gr. 1,017; sed.: polynuclears 52%, lymphocytes 39%, endothelium 4%. Many of the polynuclears show diplococci resembling pneumococci. Many red blood corpuscles. *Chest tapped again* on the 19th: fluid approximately the same as on the 15th. Cultures: no growth. Sputum: typical pneumonia. Patient's condition remained without improvement, and was discharged; dead on March 12. Clinical diagnosis: endocarditis. Right pleural effusion. Autopsy showed aortic endocarditis, hemorrhagic infarction of the lungs with invasion of portions by the pneumococcus with resulting consolidation.

CASE 53. — D. C., twenty-eight, s., Italian, laborer. June 20, 1903. F. H. P. H. habits unimportant. Pres. ill. — Three weeks (?) sick with cough, fever, and pain in right chest, chills at onset. Phys. exam. — W. D. and fairly W. N.; expression anxious. Heart negative. Lungs: pneumonia right upper lobe. Temperature averaged about 103 for two weeks, 102 for two weeks, and then 100.5. Pulse averaged 120; respirations averaged 30 to 35. Blood: whites — 46,400. Sputum: muco-purulent, greenish, many influenza bacilli. *July* 6, *right chest tapped, fluid:* amount 3 oz., cloudy, straw colored, considerable coagulum; sed.: large amount, muco-purulent; polynuclears 97%, lymphocytes 2%, endothelium 1%. Count of 300 cells; most of cells necrotic, but easily recognizable; organisms resembling pneumococci seen. Cultures: pure growth pneumococcus. On blood ager no influenza bacilli. Patient apparently improved and signs of fluid diminished, but on July 20 signs of re-accumulation of fluid appeared, and on the 22d right back was tapped and pus withdrawn. Pus slightly greenish. Cultures pure pneumococcus. Transferred surgical. Discharged relieved Aug. 6. Clinical diagnosis: influenza pneumonia. Empyema.

CASE 54. — E. W. N., eighteen, s., American, chemist. May 8, 1903. F. H. and P. H. negative. Habits excellent. Pres. ill. — Seven days ago with sudden onset, chill, headache, fever and delirium, vomiting, cough, and bloody sputum, pain in right side, dyspnea. Phys. exam. — W. D. and fairly W. N. Color good. Heart negative. Lungs: pneumonia right lower lobe. Temperature between 102 and 103½; pulse averaged 100, respirations 30. Blood: whites — 32,400. *May* 13, *chest tapped, fluid:* amount 390 c.c., yellowish, cloudy, turbid, alkaline, alb. 3%, sp. gr. 1,018; sed.: somewhat necrotic pus, polynuclears predominating; lymphocytes few, eosinophiles rare, with moderate number of cocci seen, some of them intracellular. Cultures: pure pneumococcus. Pig inoculated; died in four days; autopsy, negative. Three cover-slip preparations examined for tubercle bacilli, negative. May 21, chest tapped, 6 oz. of pus withdrawn. Pus culture pneumococcus. Transferred surgical for operation. Clinical diagnosis: lobar pneumonia. Pleurisy with effusion.

CASE 55. — T. T., thirty-four, m., American, laborer. May 13, 1903. (O. P. D.) F. H. good. P. H. unimportant. Habits: alcohol to excess up to three months ago. Pres. ill. — Came to the hospital May 12 for relief of stomach symptoms. Sept. 12, 1903, complained of pain in left chest. Physical examination showed left pleural effusion. Temperature 100.2. Examination of heart and lungs in May negative. *Chest tapped Sept.* 12, *fluid:* straw colored, moderate coagulum; sed.: count of 500 cells, polynuclears 58.6%, lymphocytes 38%, eosinophiles .4%, endothelium 1%, large mononuclears 2%; moderate number of red corpuscles. Cultures: no growth. Pig inoculated; autopsied Oct. 12; negative. Inoscopy: negative. Clinical diagnosis: pleurisy with effusion.

CASE 56. — J. G., forty-three, m., Scotchman, farmer. July 29, 1903. F. H. good. P. H. negative. Habits good. Pres. ill. — Three weeks ago struck by heavy hook used for lifting hay, resulting punctured wound of right side. In bed since; dyspnea, pain; wound healed within a week. Slight cough for few days. Phys. exam. — W. D. and N. Color good. Heart negative. Lungs: right pleural effusion; examination otherwise negative. Temperature at entrance 101, falling in the course of five days to normal. Pulse averaged 80, respirations 20 to 25. Blood: whites — 13,000. *July* 30, *chest tapped, fluid:* amount 70 oz., slightly turbid, alb. .6%, sp. gr. 1,019: sed.: count of 305 cells, polynuclears 57.6%, lymphocytes 31.2%, eosinophiles .5%, endothelium 4.2%, large mononuclears 6.5%. Cultures: no growth. No sputum. Aug. 5, chest tapped, amount 18 oz., alb. 1%, sp. gr. 1,013. Steady improvement. Aug. 11, discharged much relieved. Clinical diagnosis: traumatic infectious pleurisy.

CASE 57. — H. G., nineteen, s., Austrian, mattress-maker. Jan. 6, 1904. F. H. good. P. H. unimportant. Habits good. Pres. ill. — Four weeks ago taken sick with chills, headache, malaise, no cough. Was in Boston City Hospital twelve days when he returned home, and two days later was taken sick again with increase of pain, particularly in the joints. Dyspnea. Phys. exam. — W. D. and fairly W. N. Slightly pale. Heart: signs of mitral and aortic disease. Lungs: signs of pneumonia; patch left base; examination otherwise negative, except for rapid respiration. Temperature chart up to time of his death not remarkable. Pulse continually 100 and over, with few exceptions. Respiration chart extremely irregular, for the most part higher than 35. Blood: whites — 15,800. Sputum typical of pneumonia; no tubercle bacilli. Patient developed left pleural effusion. *Jan.* 14, *chest tapped, fluid:* color orange, considerable coagulum, alb. 2%, sp. gr. 1,018; sed.: count of 510 cells, polynuclears 50%, lymphocytes 34%, eosinophiles ½%, endothelium 13%, large mononuclears 2½%; considerable number of red corpuscles. Cultures: no growth. Blood: whites — 17,700. Patient's condition fluctuated until death finally took place on April 19. Clinical diagnosis: malignant endocarditis. Pneumonia. Pleurisy with effusion.

CASE 58. — L. H. H., twenty-two, s., American, conductor, elevated railroad. March 7, 1904. F. H. good. P. H. unimportant. Habits good. Pres. ill. — Twelve day before entrance caught cold; one week ago cough, pain in left side, dyspnea, for two days chilly sensations; pain, heat and swelling in ankles, knees and

shoulders. Phys. exam. — W. D. and N. Good color. Heart: signs of endo- and pericarditis. Lungs: signs of consolidation at the left base with thickened pleura; examination otherwise negative. Temperature running between 102 and 106; pulse 70, gradually rising to 120. Respirations averaged about 30, gradually rising to 55. Blood: whites — 16,800. Sputum that of pneumonia. Patient developed signs of fluid at the left base. *March* 18, *chest was tapped, fluid:* orange color, slightly turbid with fibrin flakes and clots; alb. 3%, sp. gr. 1,020; sed.: abundant count of 500 cells, polynuclears 82.6%, lymphocytes 9.2%, eosinophiles .4%, myelocytes .4%, endothelium 5%, large mononuclears 2.4%; moderate number of red corpuscles. No organism seen on cover-slip. March 19: Blood: whites — 22,000. *March* 20, *left chest tapped again, fluid:* orange color, slightly turbid, one small fibrinous clot, sp. gr. 1,015, sed.: count of 500 cells, less by half than before, polynuclears 70%, lymphocytes 12%, myelocytes 1%, endothelium 17%; few bacteria in polynuclears. Marked increase in phagocytic endothelium. Cultures: no growth. Blood: whites — 19,600. March 29, patient died. No autopsy obtained. Clinical diagnosis: lobar pneumonia. Acute articular rheumatism. Pericarditis. Pleurisy with effusion.

(To be continued.)

Medical Progress.

RECENT PROGRESS IN GYNECOLOGY.

BY W. L. BURRAGE, M.D.

VAPORIZATION OF THE UTERUS.

Hautke,[1] in a recent discussion of this subject before the Berlin Obstetrical Society, stated that this method of treatment was not free from danger, since he had known of two fatal cases. The indications, he believes, are limited, being confined to those cases in which all other methods of treatment had failed, especially untractable climacteric hemorrhages. The writer always satisfies himself that he has not to deal with an atrophic or thin-walled uterus before introducing steam into it, and is sure that ample dilation of the cervix is maintained. Submucous fibromyomata form a contra-indication, and he never employs this method of treatment in young subjects.

Mackenrodt, in continuing the discussion, held that vaporization was a distinct step backwards in gynecological therapeutics, to be included in the same class with cauterization with chloride of zinc. He had been obliged to extirpate several uteri for hematometra, due to cicatricial contraction of the cervix following such treatment. Total extirpation of the uterus is not only safe, but more scientific in cases of recurrent bleeding. With submucous fibroids repeated curettement is better than vaporization, while if the hemorrhage is due to adnexal disease, the latter treatment is certainly useless.

The speaker did not find that the great expectations which had been held in regard to the intra-uterine use of steam had been realized, but in isolated cases of hemophilia he acknowledged that it might be indicated, though he had never met with one himself.

[1] Zeitschrift für Geburts. und Gyn. Bd., xlix, H. 2; abstracted in Amer. Jour. Med. Sciences, July, 1904.

REMOVAL OF STONE IN THE LOWER URETER BY WAY OF THE VAGINA.

Two very similar operations for removal of a calculus in the lower ureter are reported, one by E. Garceau,[2] and the other by R. Gradenwitz.[3] In Garceau's case a phosphatic stone, one cm. in diameter, was located 9 cm. from the bladder, in the left ureter; the patient, a married woman, thirty-four years old, was in a serious condition. Under anesthesia anterior colpotomy was performed, the bladder pushed up and back, the stone found and drawn towards the posterior cul-de-sac of the vagina with the last phalanx of the operator's finger; anchored there, a small incision was made over it through the vaginal and ureteral walls and the stone delivered. This opening was closed by silver wire sutures, including both vaginal and ureteral walls; the anterior vaginal opening was drained and left open. The entire operation took ten minutes, and the convalescence was a febrile and there was no fistula. Subsequent catheterization of the left ureter showed it to be pervious.

Gradenwitz's case was a v-para, forty-three years old, with organic heart disease. The uric acid calculus, the size of a cherry stone, located in the left ureter, was approached by an incision in the anterior vagina. After the bladder had been pushed out of the way, the lower portion of the left broad ligament was divided between ligatures, and the stone in its ureter pushed against the upper vagina with the operator's finger. The stone was then delivered by a second incision through the vagina. The ureter was sutured with fine thread, a sound being used as a guide at first. Both wounds in the vagina were closed without drainage. No anesthetic was used on account of the patient's condition, the operation lasting an hour. The convalescence was without fever, and there was no leakage of urine, and at the end of three weeks the cystoscope showed that the left ureter was performing its functions normally.

[2] Boston Med. and Surg. Jour., vol. cl., p. 426, 1904.
[3] Zentralblatt für Gynäkologie, vol. xxviii, p. 385, 1904.

THE METRANOIKTER, A SUBSTITUTE FOR TENTS.

B. C. Hirst [4] figures an improved form of a forgotten instrument designed for gradual dilation, and to maintain the patency of the cervical canal. The metranoikter (*μήτρα*, the uterus, *ἀνοίγω*, to open) consists of a four-branch dilator without a handle, the dilating power being furnished by the two steel springs which form the body of the instrument. Each spring is in the form of an oval, open at one end, the two springs being crossed at a right angle and held together by a rivet at a point opposite the open end. The four blades form the long ends of the springs, and are prevented from expanding by a set of levers and set screws which are loosened after the metranoikter is in place, by long-handled

[4] American Medicine, vol. vii, p. 886, 1904.

pljers introduced into the vagina. The instrument was first presented to the Leipsic Obstetrical Society by Schatz in 1881. Hirst has used his modified form during the past winter to obtain a wider and more permanent dilation than is possible with any other instrument and without the danger which attends the use of tents.

He says: "If the dilation is performed for dysmenorrhea and sterility, I have used (1) a Baer's modification of Goodell's dilator; (2) a heavy Wathen's dilator; (3) the four-branched Cleveland dilator; then have curetted the uterus, washed out the cavity, inserted the metranoikter, and packed the vagina with sterile gauze. The metranoikter remains in the uterus twenty-four hours. If the instrument is used for diagnostic purposes, only enough dilation is secured with a light dilator to permit its insertion. In multiparas no preliminary dilation at all may be required. At the end of twenty-four hours, when the metranoikter is withdrawn, it is possible to insert the forefinger to the fundus uteri, and to palpate with perfect ease the whole uterine cavity."

[It would seem as if this instrument were destined to meet a long-felt want for some means of gradual dilation of the cervix where the danger of sepsis does not enter in. The metranoikter can be rendered absolutely sterile, and the open blades permit of the free egress of the uterine discharges.]

GELATIN IN UTERINE HEMORRHAGE.

H. C. Wood, Jr.,[5] reviews the action and use of gelatin in the control of hemorrhage. Recent literature shows that the most serious drawback to the use of gelatin is the difficulty in rendering it perfectly sterile. Various manufacturers have placed on the market a 10% solution of gelatin under the name of "gelatina sterilisata," which is guaranteed to be sterile.

In uterine hemorrhage of the milder grades, the use of gelatin by the mouth shows as good results as can be achieved by its hypodermic injection. The use of gelatin tampons is advocated in metorrhagia. For hypodermic use it should be dissolved in warm normal salt solution in the strength of from 2 to 5%, of which from 100 cc. to 200 cc. may be given as a dose.

TREATMENT OF INOPERABLE UTERINE CANCER.

A. Martin[6] remarks on the increasing proportion of operable cases of uterine cancer which we now encounter, Mackenrodt even reaching the proportion of 94%. Zweifel has never observed a case of cancer in a patient whom he had previously treated for a gynecologic affection, but Lomer has had a case in which he was able to detect the incipient phase of a cancer and watch its development. Martin has observed two such cases. One was in a woman of thirty, a year after a benign adenoma of the corpus had been removed. She was a ii-para, with rachitic pelvis, requiring instrumental delivery of the second very large child. The ninth day the lochia showed traces of blood, and a nodule as large as a bean was found to have grown in the cervix. High amputation of the collum was done in two weeks, but the patient succumbed the seventh week after delivery with diffuse carcinoma metastases over her entire body. The other patient was a woman of forty-two, with extensive erosions of the portio. They were excised and showed no trace of cancer. She returned about a year later with a cauliflower cancer at the spot, and was treated by total extirpation. She died eleven months later, four months after the first symptoms of metastasis had been noted. In all of Martin's experience he has encountered but a single instance of spontaneous recovery from a cancer. This was in a woman of forty whose vagina and collum were the crater of scirrhus. The disturbances were slight and she refused an operation. Her physician gave her condurango, and reported recently that she was still alive after twenty-two years, and did not require treatment of any kind. Martin has also encountered three other instances in which the disturbances were so slight that the elderly patients bore them without trouble, and succumbed years afterward to senile exhaustion of the vital forces. His father, as long ago as 1871, called attention to the frequency of cancer of the uterus in women who had married again after having been infected with syphilis by their first husband, who had succumbed to some syphilitic brain affection. The frequency of this sequence in his experience was so striking that he made it a rule to advise such widows against remarriage. Two who followed this advice are free from cancer to date. Martin's observation has been that cancer in young, full-blooded women runs a more rapid course than in others, and that a pregnancy has a most baleful effect on it. No benefit was derived in his inoperable cases from any of the drugs recommended for general or local treatment nor from electrolysis. He prefers to curette and pack the crater with gauze impregnated with solution of ferric chlorid, leaving it in place for four to six days. The surface granulates, and after four or five days it is irrigated with dilute tincture of iodin, after which it skins over. As a rule, the crater heals completely and the patients are rejuvenated. The fetid secretions, hemorrhages and pains are arrested by this procedure, and the moral effect on the patient is a great gain. When symptoms of recurrence appear, he repeats the excochleation and the cauterization as long as it is possible to avoid injury of other organs in so doing. Later than this he uses antiseptics to deodorize, and narcotics to relieve the pain, with alcohol to delude the patients.

VALUE OF LEUCOCYTE COUNT IN GYNECOLOGY.

M. Dützmann[7] bases his conclusions upon about 2,000 blood counts made in 223 cases. In 90 of these the increase of white blood cells led

[5] Therapeutic Review, vol. i, No. 4, 1904.
[6] Therapie der Gegenwart, xiv, No. 6; abstract in Jour. Amer. Med. Asso., July 30, 1904.
[7] Monatschr. für Geb. u. Gyn., Bd. xviii, H. 1; Amer. Jour. Obs., Jan., 1904.

to a correct diagnosis of suppuration, although examination under anesthesia failed to discover purulent collections. Counts were made in 11 cases of puerperal or post-operative exudate, 22 of purulent or non-suppurative inflammatory disease of the appendages, 9 of tuberculosis, 2 cases in which pus was present, yet the leucocyte count negative, 12 cases of myoma or carcinoma, 7 of tubal pregnancy, 10 of large ovarian cysts, 16 of puerperal and post-operative sepsis.

He found the leucocyte count a reliable means of diagnosis of the presence of pus in the exudative collections. In diseases of the appendages of suppurative or non-suppurative character, the blood count is of value for differential diagnosis and for deciding the choice of the abdominal route.

In myoma, carcinoma, and tubal pregnancy it is often the only sign of a simultaneous collection of pus in the abdominal or pelvic cavity. Tuberculous pus causes no leucocytosis and gonorrhea, but slight increase of white cells. In cases of large ovarian tumors, especially with torsion of the pedicle and peritonitic symptoms, there is marked leucocytosis without the presence of pus. In sepsis a persistent hyperleucocytosis indicates a favorable progress. This may furnish the indication for operative treatment in cases of puerperal fever. In eclampsia infrequent convulsions are associated with hyperleucocytosis. This points to the fact that eclampsia is an infection.

COLPOTOMY AND RESECTION OF THE TUBES TO PRODUCE STERILITY.

P. Rissmann [8] describes an operation he performed on a patient who had had violent and frequent convulsions due to hysteria or epilepsy. The posterior cul-de-sac was opened by the usual incision back of the cervix, and the anteflexed uterus with the ovaries and tubes drawn down into the vagina by means of a bullet forceps in the posterior uterine wall. Then the uterine portion of both tubes was excised and the wounds carefully sutured, after which the uterus was replaced and the vaginal wound closed. The patient made a good recovery.

SO-CALLED RECURRENT FIBROID POLYPS.

Grousdeff [9] reports a case of a woman aged forty-four years, who presented a typical recurrent fibroid. This term was introduced fifty years ago by English gynecologists, such as Hutchinson, Callender, Paget and others, to designate the tendency of some uterine polypi to return rapidly after removal. Although a number of investigators have studied this condition, it still presents many unsolved questions. The majority of authors believe these recurrent fibroids to be not fibroids in the proper sense, but sarcomas arising from the myometrium. There is a difference of opinion as to whether they are primary sarcomas or degenerated fibromyomas. In the case reported the polypi recurred ten months after removal. A hysterectomy was performed, but the uterus itself was not found to be the seat of a tumor. The microscopical examination showed that the uterine wall presented only inflammatory changes. The polyp showed the structure of a sarcoma. Six months after the operation the patient was seen again and showed a tumor in the pelvis near the bifurcation of the large vessels. The diagnosis was a sarcoma of the lymph glands, and a third operation was performed, consisting of the removal of these glands, so far as they could be reached. The patient made a good recovery, and examination of the gland showed the presence of a typical sarcoma. The author thinks that the polyp in these cases of recurring fibroid is really a primary sarcoma. A radical operation is indicated whenever the diagnosis is made.

A CASE OF DOUBLE VAGINA WITH SINGLE UTERUS.

F. Marchand [10] reports a case of this rare condition. He thinks that double vagina with single uterus is the rarest form of the malformation resulting from partial union of Müller's ducts. According to Nagel's investigations, only the upper (proximal) tubular portions of the ducts are formed of cylindrical epithelium, while the lower (distal) solid portions are made of large cells rich in protoplasm. Normally, the upper portions are fused and the inner septa absorbed, to form the uterus; the lower portions become a single solid epithelial body, out of which the vagina is formed later. Persistent separation of the lower portion results in a single uterus and double vagina.

Dr. Löhlein performed an autopsy on Marchand's case, a virgin of twenty-two who died of brain tumor, and found a normally formed uterus connected with a double vagina into each half of which a finger could be introduced. One tube connected directly with the canal of the cervix, and the other by means of an opening in the septum at the top of the vagina. The vulva showed two distinct vaginal openings, at each of which there was a hymen.

TORSION OF THE PEDICLE OF OVARIAN TUMORS.

Fritz Hammer [11] analyzes 43 cases of torsion of the pedicle noted in 248 ovariotomies performed at the Würtzburg clinic in twelve years. In 7% there were sudden clinical symptoms, in 60.5% there were several lesser attacks of pain, and in 32.5% there were no symptoms, the condition being diagnosticated only at operation.

Torsion was noted in 32 cysto-adenomata, 4 dermoids, 1 fibroma, 1 cystosarcoma and 3 parovarian cysts. Twenty-three torsions were from left to right, 18 from right to left, and 1 with a double twist.

The causation of torsion is assigned to the unsymmetrical development of the tumor, adopting Hofmeier's view, pregnancy and other supposable causes having little influence. All the cases recovered except two, who were in collapse when admitted.

[8] Zentralblatt für Gynaekologie, Dec. 12, 1903.
[9] Roussky Vratch, Feb. 28, 1904; N. Y. Med. Jour., vol. lxxix, p. 947, 1904.
[10] Zentralblatt für Gynäkologie, No. 6, p. 161, 1904.
[11] Abstract in Zentralblatt für Gynaekologie, No. 5, p. 149, 1904.

PATHOLOGY OF UTERINE FIBROIDS.

Watt-Keen [12] gives the following statistics from Hofmeier's clinic at Würtzburg: In 417 cases of uterine fibroids, these complications were met: Ovarian cysts, 27; diseased tubes, 19; uterine displacements, 14; carcinoma and sarcoma of the uterine body, 9; umbilical hernia, 4; inguinal hernia, 3; parovarian cyst, extra-uterine pregnancy, abscess of the ovary, of each one. Myxomatous degeneration was present in 8 and necrosis in 8 fibroids. Twenty per cent of the married women were sterile.

Myomectomy (abdominal) was performed 123 times, supra-vaginal amputation 44, and total extirpation 15 times. Forty-five vaginal myomectomies and 43 vaginal hysterectomies were performed. Total mortality, 6.48%.

(To be continued.)

Reports of Societies.

AMERICAN MEDICAL ASSOCIATION. SURGICAL SECTION.

FIRST DAY. — TUESDAY, JUNE 7.

CHAIRMAN, Dr. CHARLES A. POWERS, Denver; Secretary, Dr. E. WYLLYS ANDREWS, Chicago.

The Chairman read an address in which he reviewed the history of the section, giving the names of the previous chairmen and a résumé of their work. He referred to the progressive surgery in recent years and commented on the increase in the number of men who were devoting themselves exclusively to surgery. He detailed at some extent the history of surgery, and stated that he felt the younger men were inclined to overestimate the results to be got from surgical operations. He feared many operations were done without a due amount of previous study and considered that no one should perform an operation on any one else that he would not have allowed to be done on himself under the same circumstances. He urged that surgeons should have fine sensibilities, be courageous and hopeful and of the highest character, with most delicate feeling.

THE DANGER OF ALLOWING WARTS AND MOLES TO REMAIN LEST THEY BECOME MALIGNANT, WITH TWENTY-FIVE ILLUSTRATIVE CASES.

Dr. W. W. KEEN, Philadelphia, read this paper which was chiefly clinical, intended to emphasize the danger of not removing warts and moles and sometimes nevi, because not uncommonly they became malignant. He pointed out that many of these moles and warts were congenital, or else having arisen later, had persisted in apparent harmlessness for many years and then, in consequence of injury, friction of the clothing, frequent scratching or other irritant, they began to increase in size and were then already malignant. To wait until they began to grow would be waiting too long. He advocated that they should be removed with the skin in which they grow *before* any malignant change occurred, that is, during the period of quiescence. Twenty-five cases were reported, arising on almost all portions of the body. Of the twenty-five, eleven were known to have died, sometimes in spite of multiple operations or even amputation, and several others probably died.

[12] Zentralblatt für Gynäkol., No. 5, p. 150, 1904.

Dr. WILLIAM L. RODMAN, Philadelphia, said he felt Dr. Keen had rendered a great service in calling attention to this matter, and that his experience had been very similar to the author's. He gave the details of three cases occurring in his own practice, the first making a good recovery after operation, the second doing fairly well for the present time and the third dying within a year of the operation. The first was a case of a wart on the temple, the second a wart on the left hand and the third an ulcer on the back of the hand following a wart.

Dr. GUSTAVE FUTTERER, Chicago, referred at some length to the important part played by mechanical factors in producing malignant changes in cells. He commented on the close relation between metaplasia and carcinoma and the fact that the former may occur in any part of the body. He had a number of specimens illustrating his points which he demonstrated to the members.

Dr. ROBERT F. WEIR, New York, believed that every mole and wart had better be destroyed at once, but referred to the difficulty of getting the patient's permission to do so, largely on account of the resulting scar. He detailed his own method of dealing with these cases where an operation was refused, the principal point being the use of acetic acid.

Dr. ERNEST LAPLACE, Philadelphia, considered that these cases usually occur in tissues of diminished resistance and believed old age to be a prominent predisposing factor. Warts proper in his opinion were of a true epitheliomatous type and a wart proper nothing more than a hypertrophy of the papillary layer of the skin. He made some remarks on moles of an angiomatous type where there was a great proliferation of the blood vessels which were likely to take unto themselves what any other form of proliferation might do.

Dr. A. D. BEVAN, Chicago, feared the possibility of making a very rapid general involvement from the operation itself by apparently infecting the operative wound. He referred to cases of removal of melanotic sarcoma where the operation had been followed almost immediately by general involvement. To overcome this he favored making the growth absolutely dry before operation by the use of the Paquelin cautery; referring to cases where a large number of moles were present he showed how impossible it was to think of removing them all, but he favored early operation when any indication of irritation was present.

Dr. KEEN in closing referred to a mole as a match which might be the starting point of a great conflagration. He agreed with Dr. Bevan as to the possibility of a general involvement following operation and urged the use of reason in these cases.

STARVATION. OPERATION FOR MALIGNANCY IN THE EXTERNAL CAROTID AREA; ITS FAILURES AND SUCCESSES.

Dr. ROBERT H. M. DAWBARN, New York, read this paper in which he gave a brief description of the technique of external carotid extirpation. He commented on the remarkable safety of the operation, and gave his deductions which were drawn from an experience of more than fifty cases. He showed why there was such a short respite in carcinoma as compared with the much better record in sarcoma. He pointed out when and under what circumstances the operation was indicated and what was its probable future.

Dr. G. W. CRILE, Cleveland, reported that he had

never tried the operation, but was very anxious to learn more about it. He felt it was much better to temporarily close an artery to control hemorrhage rather than to use a permanent ligature. He feared the occurrence of embolism, which danger, although small, he considered avoidable.

Dr. BRISTOW claimed to have operated eleven times on six patients, five of whom had epitheliomata and one a sarcoma, the latter dying shortly after the second operation. He laid great stress on the fact that the patients were all very promptly relieved of their severe pain so that their lives were made far more endurable. He reported never having lost a case on which he had operated for tubercular glands, although in some cases sudden death followed almost immediately after the operation. In itself the operation could not cause death from hemorrhage as it was practically a bloodless one, and he believed the cause of death to be due to nerve inhibition.

Dr. DAWBARN in closing agreed with Dr. Bristow on the sudden and complete cessation of pain following the operation, and referred to one case where a sufficient shrinkage took place to make an operation possible. He found it very difficult to make any estimate of mortality, but believed under ordinary circumstances that it would not be over 5%. He called special attention to the fact that the operation was always done as a last resort and it was simply a question between it and a coffin.

WHAT IS THE PROPER SURGICAL TREATMENT OF SUSPICIOUS TUMORS OF THE INVOLUTING BREAST?

Dr. J. CLARK STEWART, Minneapolis, urged the great necessity of acceptable procedure which would allow exposure and macroscopic, as well as, if need be, microscopic examination of the suspected mass, before deciding upon the extent and nature of the operative procedure to be carried out. He referred to the recorded cases, illustrating recurrence by grafting, which he said were too numerous to admit of any doubt of the practical value of this point. In referring to the technique of the exploratory operation, he commented on the several important details necessary, as follows: First, all tissues exposed to infection by the incision must subsequently be removed in case malignancy is not excluded. Second, the instruments used for the section of the tumor should be laid aside or resterilized before proceeding with the operation. Third, all lymphatic connections of the tumor should be cut or interrupted before making the tumor section. With these precautions he considered it difficult to see how grafting could occur. He discussed a paper on this subject by Dr. Abbe at considerable length and quoted from Dr. Abbe's paper, taking exception to several points contained therein. Reference was also made to the work of Dr. Bloodgood, at the Johns Hopkins Hospital, and attention was called to the difference in results obtained by Dr. Abbe and Dr. Bloodgood. Attention was called to an article on this same subject by Dr. A. G. Ellis of Philadelphia, and two illustrative cases were quoted in detail. In the author's opinion, these cases illustrated very well two conditions in which the surgeon may rightfully doubt the diagnosis and proper operative procedure unless he is aided by properly performed exploratory procedure.

The author concluded his paper by stating: First, there is a lamentable and unnecessary difference of opinion among surgeons as to the treatment of doubtful tumors of the breast; second, all tumors of the breast in patients over forty must be considered malignant until proven benign; third, most of such tumors demanded amputation with exploration of the tumor, and a complete Halsted if there was then doubt as to benignancy; fourth, an exploratory procedure should be planned to avoid contact of cut lymphatics with any tissues left behind, and any chance of dissemination of cancer cells by pressure before the removal of the breast; fifth, x-ray treatment, aspiration, or any but radical treatment was objectionable as causing delay and dissemination.

Dr. WILLIAM JEPSON, Iowa, urged the free use of the miscroscope in these cases owing to the symptomatology of the benign and malignant growths overlapping each other so much. He believed a large number of benign growths were really benign temporarily, and that one half of the sarcomas were cystic. He doubted if it was so essential to make a differential diagnosis simply to save a breast now and then from being removed on the supposition that it was malignant when it was benign. He considered that every growth in an involuted breast must be looked upon as being malignant in at least nine out of ten cases and ventured the belief that the day was not far distant when it would be considered good surgery to begin operative procedure by total extirpation at once in every breast that was the seat of a growth.

Dr. H. R. WHARTON, Philadelphia, agreed with the essayist on the question of malignant growths in the breast and felt considerable difference should be made in the decision according to the age of the patient. In his opinion it did not matter so much after the menopause as it did before the age of thirty.

Dr. J. C. BLOODGOOD, Baltimore, took the stand that the successful removal of tumors depended more upon an early diagnosis than upon operative technique. He gave some statistics of Dr. Halsted's work in Baltimore and claimed that the number of benign tumors of the breast was increasing because the public was seeking advice earlier. He stated that in young women under thirty with multiple tumors in one or both breasts there was no indication for operation, but in single tumors of the breast at any age an immediate investigation should be started. The danger of an exploratory incision followed by operation he did not think amounted to anything, and advised immediate exploration of a single tumor of the breast at any age. He disagreed with the statements of Dr. Abbe of New York on this subject, as quoted by the author, and in alluding to the results which sometimes followed refusal of operation he mentioned five cases where the induration had eventually entirely disappeared. In his opinion every case of cystic tumor of the breast runs a 10% chance of developing cancer.

Dr. R. H. GIBBONS, Scranton, agreed with Dr. Abbe's point of view as quoted by the author.

Dr. MORRIS, New York, suggested a way of influencing patients to submit to operation by offering to remove a small part of the growth, make a frozen section diagnosis on the spot, requiring but five minutes' time, and if benign agreeing to simply remove the growth, while if malignant total extirpation should be done at once. He believed that patients were usually as anxious to know definitely the nature of the neoplasm as the surgeon himself, and laid stress on the element of curiosity on the part of the patient.

Dr. WILLY MYER, New York, gave a demonstration of his method of dealing with these cases.

Dr. STEWART, in closing, referred to the rule at the Johns Hopkins Hospital that only one person may examine a malignant tumor, and stated that if there was so much danger from examination there certainly must be more from the use of the knife.

THE INFLUENCE OF THE ADIPOSE TISSUE WITH REGARD TO THE PATHOLOGY OF THE KNEE JOINT.

Prof. Dr. A. HOFFA, Berlin, read this paper by invitation of the Section, and referred extensively to the work already done by surgeons in various parts of the world. He detailed the anatomical conditions found in a sound knee joint with special reference to the fat tissue, the character of which he dwelt upon fully. He reported having removed a number of growths larger than eggs, some of which showed clear evidence of hemorrhages. He advised the examination of all patients in a standing position so that both knees might be compared, and showed how different the crepitation elicited was from that of arthritis. He did not consider the diagnosis of these cases at all difficult, and while he admitted that some of his observations had been made by other surgeons they were mostly accidental while operating for floating bodies or other disturbances of the knee joint. He advised operation after massage, compression, etc., had been used without success, the incision preferably being on the median side of the patella. The results from his experience had generally been very satisfactory as the disturbance caused by the growths was removed together with their extirpation, and the operation was carried out with the necessary antiseptic precautions without danger.

SURGICAL LESIONS OF THE AXILLARY PLEXUS.

JOHN A. WYETH, M.D., New York, reported in detail four cases of neuromata of the axillary nerve, all in women, and stated that temporary paralysis following a surgical operation was generally due to accident or inadvertence which was largely his reason for calling the attention of the Section to the subject.

Dr. JOHN B. MURPHY, Chicago, reported having known of a case of paralysis of the deltoid following an operation for appendicitis. He considered that cases of paralysis of the musculo-spiral were more rare than they used to be and regretted that some of them would not get well, but would degenerate in spite of all one could do. He urged the avoidance of all extreme positions which produced pressure upon the nerves.

Dr. WALTER M. BRICKNER, New York, felt that two things were to be avoided: (1) The keeping of the arm in an extreme position for any length of time without change, and (2) the dangling of the arm at the side of the table. He believed that these paralyses were more often the fault of the anesthetist than of the surgeon, and urged that the former's attention should frequently be called to the position of the arm.

Dr. E. W. HOLMES, Philadelphia, related his experience while ligating the third part of the subclavian artery and common carotid for an aneurism of the transverse part of the arch of the aorta. He explained anatomically how these conditions arise and how they may be overcome.

Dr. SOMMERS, Omaha, referred to a surgical table in more or less general use at the present time which is provided with catches to hold the shoulders, from the use of which paralysis has occasionally resulted, and urged that these supporters should be well padded before being used.

THE MATAS TREATMENT OF ANEURISM.

J. F. BINNIE, A.M., C.M., Kansas City, Mo., read this paper. In 1902, Dr. Rudolph Matas presented to the American Surgical Association his classical paper on the radical cure of aneurism. Matas' method of operating combined the advantages of ligation and excision, while at the same time it was easier, safer and might be more conservative. The operation was suitable both to the fusiform and sacculated forms of the disease. After having applied a constrictor above the site of disease, if in the limb, or temporarily ligating the proximal and distal trunks, if the carotid was the vessel at fault, one cut into the sac, thoroughly removed the contained clots, rubbed the serosa with gauze and proceeded to insert sutures. The sutures, preferably cat-gut, were first applied to the openings of all vessels entering or leaving the sac, then the deeper portions of the sac were closed by two rows of continuous Lambert sutures. The elastic constrictor was then removed, and if any blood escaped, one or two points of suture were inserted to control this. The next step consisted in folding the excess of sac wall on itself and in so doing invert the edges of the skin wound. The operation, carried out as described, had been very successful, and in some cases, *e. g.*, of sacculated aneurism, the circulation might be re-established through the repaired vessel. As Matas' operation had not yet been frequently performed, Dr. Binnie stated he deemed it the duty of those who had had even slight experience with it to publish their results; this was his excuse for the present short paper and report of a single case. J. K., fifty-two years, laborer, fairly hard drinker, as evidenced by his statement and face; several attacks of gonorrhea, syphilis at thirty-seven, with apparent cure under treatment; when twenty-five years old was confined to bed for six months with rheumatism; had had no recurrence of this; developed an inguinal hernia three years ago, and wore a truss. Two years ago he suffered from an acute pain shooting down the calf of the right leg; a tumor soon appeared in calf and had increased steadily in size; the affected calf measured eighteen inches in circumference — the normal one having been twelve inches; upon examination was found an expansile, pulsating tumor of the calf, reaching up into the popliteal space, which was well shown in an accompanying skiagram taken by Spaulding; there was a well-marked bruit over tumor; posterior tibial pulse was delayed; there was no tenderness and only a little pain which was referred to the foot. Diagnosis: Popliteal aneurism.

Nov. 10, 1903: Sister's Hospital; chloroform; elastic constrictor applied to thigh; incision into the tumor, through the altered gastrocnemius, showed a cavity six by three inches in diameter, largely filled with a very dense lamellated fibrinous mass. This mass was removed. The aneurism sac was thick walled and markedly athermatous. Only one opening into the sac could be found and this was closed by cat-gut sutures. The whole sac was now obliterated by several layers of Lambert sutures and the superficial wound closed without being inverted. Dressings were applied and the patient returned to bed with his limb elevated before the elastic constrictor was removed. Nov. 17: A slight elevation of temperature led me to change the dressings, when some bloody pus escaped from the wound. There was neither pain nor redness; drainage and cleanliness led to recovery; up to date there had been no recurrence. The above case was evidently one of sacculated aneurism, efficient circulation was promptly re-established, but the posterior tibial impulse can no longer be felt. The suppuration was undoubtedly due to some avoidable contamination acting on non-resistant tissues. The details of the operation were not exactly those of Matas. It seemed to me that complete closure of the sac by means of suture gave better assurance against recurrence than closure of a portion of it by two rows of sutures and obliteration of the rest by inverting the skin. The operation, in the case of popliteal

aneurism at least, was one of great ease, safety and efficiency.

Dr. RUDOLPH MATAS, New Orleans, expressed himself as much pleased with Dr. Binnie's paper and commented on the simplicity of the operation on popliteal aneurism. He did not believe that suppuration persisting in any case in any way conflicted with the final result, and reported one similar case occurring in his own practice. The fundamental point at first was the free exposure of the sac with a minimum disturbance of the surrounding tissues, but he felt that as the cases multiplied modifications would naturally arise. He believed that the restoration of the lumen was possible in many cases as illustrated by those already reported, eight of which he was familiar with. Topographical distribution made certain modifications necessary while aneurism at the root of a limb required a different technique, according to his experience.

Dr. JOHN B. MURPHY, Chicago, congratulated Dr. Binnie on his success and Dr. Matas on his operation. He believed that in trauma of the popliteal artery where aneurism followed the mortality was very great. He gave a blackboard demonstration of his own modification of the operation in these cases.

Dr. H. O. PANTZER, Indianapolis, reported a case of a patient who was shot through the thigh twelve years ago in whom a popliteal aneurism developed, and gave a blackboard demonstration of his methods of dealing with it.

(To be continued.)

CONFERENCE OF STATE AND PROVINCIAL BOARDS OF HEALTH OF NORTH AMERICA.

PROCEEDINGS OF THE NINETEENTH ANNUAL MEETING, HELD AT THE NEW WILLARD HOTEL, WASHINGTON, D. C., JUNE 3 AND 4, 1904.

THE President of the Conference, DR. J. N. HURTY of Indianapolis, Ind., delivered his annual address.

The Secretary, DR. GARDNER T. SWARTS of Providence, R. I., presented his report, and also the report of the Treasurer, in the absence of the latter.

DR. JOHN S. FULTON, Baltimore, Md., submitted the report of the committee appointed to investigate and report as to an approved disinfectant to be used by licensed embalmers when transporting bodies. The reports recommended the use of bichloride of mercury 1-1000, and formaldehyde 10% solution, for use on the exterior of the body and wrappings.

The report of the committee was adopted, and the committee continued for a further report at the next annual meeting.

The committee which had under consideration the question of affiliation with the American Medical Association presented its report through Dr. Henry D. Holton.

For several reasons, the committee thought that the interests of the organization could be better subserved by retaining its own identity to the fullest extent. The report was adopted.

There was also considered a resolution which was presented at the Baltimore meeting, last year, relative to legislation looking to the prevention of typhoid fever, caused by sewer contamination of oysters. Dr. Swarts reported considerable interest in the matter throughout the country, particularly in New Jersey and California.

There was considerable discussion on this subject by Drs. Lee, Fulton, Mitchell and Lindsley. It was stated that the infection took place after the oyster was removed from the salt water and put into fresh water ponds for the purpose of enlargement by absorption of the water. This water, often contaminated, caused the infection of the oyster.

The resolution offered by DR. J. A. EGAN of Springfield, Ill., at the meeting in Baltimore, in 1903, to the effect that measures be taken by Boards of Health, Boards of Education, and school authorities to compel legislation looking to the examination of the eyes and ears of all school children, was considered in connection with a paper by DR. FRANK ALLPORT of Chicago. As Dr. Allport was not present, the Secretary read his paper.

DR. C. E. COOPER, Denver, Col., introduced a resolution recommending the disinfection of railway cars and their contents by air pressure. The resolution was freely discussed, then referred to a committee to report at the next annual meeting of the Conference.

DR. HOLTON presented the report of the committee which was appointed at the Baltimore meeting to consider the best means of controlling the spread of venereal diseases. The committee prepared a leaflet containing instructions for the patient, which it recommended should be widely distributed. The report of the committee was adopted.

In connection with the same subject, DR. F. C. VALENTINE, New York City, read a carefully prepared paper on the dangers and spread of venereal diseases.

On motion, the committee on Venereal Diseases was continued with the request that everything possible be done to further the work.

A paper prepared by MR. HENRY CLAY WEEKS, Secretary of the National Mosquito Extermination Society, Bayside, L. I., was read by L. O. HOWARD, Chief Entomologist United States Department of Agriculture.

DR. CARL L. BARNES of Chicago discussed disinfectants to be used by undertakers.

The officers elected for the ensuing year were: President, Dr. John S. Fulton, Baltimore, Md.; Vice-President, Dr. M. K. Foster, San Francisco, Cal.; treasurer, Dr. J. A. Egan, Springfield, Ill.; secretary, Dr. Gardner T. Swarts, Providence, R. I.

Conference then adjourned *sine die*.

Recent Literature.

A Textbook of Pathology. By ALFRED STENGEL, M.D., Professor of Clinical Medicine in the University of Pennsylvania; Physician to the Philadelphia Hospital, etc. With 394 illustrations in the text and 7 plates. Fourth edition, thoroughly revised. Philadelphia, New York, London: W. B. Saunders & Co. 1903.

Since its first appearance this work has been popular with students. In its present improved and enlarged form, a great amount of useful information is presented. Special attention has been paid to a revision of the chapters dealing with immunity, inflammation and certain bacterial diseases, including typhoid fever, yellow fever, tuberculosis and dysentery. Recent work of interest to the scientific clinician in general pathology and bacteriology has been incorporated. On the other hand, the results even of the most important of recent investigations in pathological histology are not presented. The descriptions of histological changes are totally inade-

quate. The illustrations of gross anatomical alterations are numerous. Many are original and the others have been carefully selected. The value of the present edition has been enhanced by an appendix devoted to pathological and bacteriological technic.

A System of Physiologic Therapeutics; A Practical Exposition of the Methods, other than Drug-Giving, Useful for the Prevention of Disease and in the Treatment of the Sick. Edited by SOLOMON SOLIS COHEN, A.M., M.D. Vol. VII. *Mechanotherapy and Physical Education, including Massage and Exercise.* By JOHN K. MITCHELL, M.D., Fellow of the College of Physicians of Philadelphia, etc. And *Physical Education by Muscular Exercise.* By LUTHER HALSEY GULICK, M.D., Director of Physical Training in the Public Schools of Greater New York, etc. With Special Chapters on Orthopedic Apparatus by JAMES K. YOUNG, M.D.; on Corrective Manipulations in Orthopedic Surgery by H. AUGUSTUS WILSON, M.D.; and on Physical Methods in Ophthalmic Therapeutics by WALTER L. PYLE, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

Vol. VII of this series is taken up with the subjects of mechanotherapy and physical education, including massage and exercise, contributed by Dr. John K. Mitchell, and physical education by muscular exercise, contributed by Dr. Luther Halsey Gulick In addition to these general subjects many matters of interest to the orthopedic surgeon in the way of apparatus and curative manipulations are discussed, together with physical methods used in ophthalmic therapeutics. Dr. Mitchell discusses in systematic form and considerable detail the whole subject of massage and exercise taken in the broadest possible way, and outlines briefly the various systems of physical culture which have from time to time been in vogue. He speaks highly of Dr. Sargent's work and describes it as the only genuine original contribution of America to formal gymnastics. A few pages are given to the Zander method, and the usual defects of a purely mechanical method of treatment pointed out. He recognizes, however, the usefulness of mechanical appliances in certain forms of treatment, but sees in the great expense of the Zander apparatus and the cost of its running an argument against its use. It is quite impossible in the limits of a notice of this character to give in detail the various topics which Dr. Mitchell discusses. Let it suffice to say that the entire subject is brought in an accessible way to the reader's attention, and that there will be found in this book a mass of information which hitherto has been widely scattered. The illustrations of this section are numerous, largely photographic reproductions and highly instructive. Dr. Gulick carries the subject further in his discussion of physical education by muscular exercise, a matter on which he speaks with authority. This section also is to be commended. Among the addenda numerous illustrations of orthopedic apparatus are given. Correct manipulations as applied in orthopedic surgery are described by Dr. H. Augustus Wilson, including the Lorenz method. Dr. W. L. Pyle contributes an instructive chapter on physical methods employed in ophthalmic therapeutics. In general, the book is a worthy successor of those which have gone before, and will do its share toward establishing still further the reputation of this excellent series.

Immune Sera. Haemolysins, Cytotoxins and Precipitins. By Prof. A. WASSERMANN, M.D., University of Berlin. Authorized Translation by Charles Bolduan, M.D. 12mo. 77 pages. New York: John Wiley & Sons. 1904.

English and American students of bio-chemistry will welcome the publication of this translation of Professor Wassermann's admirable lectures. The modern theories of immunity and the results of recent studies are clearly and interestingly presented by one of the leading investigators in that new domain of science "which concerns itself with the reactions resulting from the injection of the organic constituents of one animal into the body of another." We know of no better exposition of Ehrlich's theories, and the original work has been held in high regard since its appearance in Volkmann's *klinische Vortrage* two years ago. The work of translation has been satisfactorily accomplished.

General Pathology or the Science of the Causes, Nature and Course of the Processes of Disease. By DR. ERNST ZIEGLER, Professor of Pathological Anatomy and General Pathology in the University of Freiburg. Translated from the tenth revised German edition and edited by ALDRED SCOTT WARTHIN, Ph.D., M.D., Professor of Pathology and Director of the Pathological Laboratory in the University of Michigan. Royal 8vo. 784 pages, illustrated by 586 engravings in black and colors. New York: William Wood & Co. 1903.

All teachers of pathology will welcome the appearance of this work. It is a translation of the latest edition of Ziegler's classical treatise by one of the leading American pathologists who has succeeded in rendering the text of the original in clear and idiomatic English.

The many changes which the advance in pathology has made necessary are incorporated. Numerous alterations have been made, and the first three chapters which deal with the causes of diseases and immunity have been entirely recast. Special attention has been given to the revision of the chapters on animal and vegetable parasites.

The value of the work is enhanced by the addition of a bibliography which was omitted in the previous translation. Not only the complete bibliography as given by Ziegler is included but the editor has added the most important American references.

In our opinion there is no better work on general pathology to place in the hands of American medical students.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, OCTOBER 6, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

Subscription Terms: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 and 29 Bromfield Street, Boston, Mass.

THE INTERNATIONAL CONGRESS OF ARTS AND SCIENCES.

The International Congress of Arts and Sciences at St. Louis was a noteworthy gathering, and doubtless has met in many ways the anticipations of its promoters. The programme shows that an active part in a most comprehensive plan to illustrate the co-relation of the arts and sciences was taken by men really prominent in their different and manifold lines of work, while the presence and participation of many European — and, indeed, Asiatic — leaders fully justified the adjective international. Without a programme before one it would be difficult to realize the full scope of the congress. A person, not much more ignorant than he ought to be, might there discover the existence or, at least, the names of certain branches of science of which he hears for the first time. The person who resisted all the temptations of the Exposition proper could attend eleven out of about one hundred and sixty meetings, from ten to one and three to six each day, and seek relaxation on the Pike in the evening.

The arrangements of the congress were admirable, with the exception of the acoustics of the halls, which were sometimes lamentably bad. The papers were usually of a high degree of excellence, and their topics were discussed from a broad and philosophic standpoint so that students from across the boundaries of any specialty could understand and be interested. For example, when Professor Ostwald, the renowned physical chemist, spoke on the "Methodology of Science," he was listened to not only by most of those attending the section in philosophy, but by many physicians, and by such workers in other fields as Arrhenius and L. Loeb. In the same way Dr. Councilman's paper in the medical section was listened to by many members of the section in sociology, among whom we noticed Felix Adler. Loeb's review of the development of biology in the past one hundred years drew many from the sections in medicine, and the spirited discussion of the Mission and Destiny of Physiology by Dr. Meltzer attracted many from other sections of the congress.

The congress succeeded, therefore, in making somewhat more transparent the walls that separate the different departments of science and in making it possible for us to feel the deeper relationship and fundamental unity of all the sects in science. A general "*rapprochement*" all along the line was to be felt.

Monday afternoon was given to a general meeting of the whole congress in Festival Hall. The audience — perhaps fifteen hundred — was large, and all could scarcely have heard the formal addresses of welcome from the president of the Exposition, the governor, the mayor and Professor Newcomb. Deep sympathy was felt for President Butler of Columbia University whose attendance was prevented by domestic illness. Tuesday morning was devoted to the seven divisions of the congress, each with one speaker. Tuesday afternoon the twenty-four departments, each with two addresses, had their meetings. Dr. Osler presided over the department of medicine, and Dr. Councilman was the only speaker, Dr. Billings, of Chicago, being detained by a railway accident. The remaining four days of the week were devoted to the one hundred and twenty-seven sections, each holding a three-hour session filled by two addresses of forty-five to sixty minutes, followed by short communications of ten minutes each. The plan did not contemplate any discussion of the addresses, which are to be published in due time, forming a library of twenty odd volumes. They will constitute a statement of the present state of knowledge in art and science, interesting, and it is to be hoped, valuable, to our descendants. That there should be *much* intercourse between those interested in widely different branches was, of course, impossible under the circumstances, and yet there was a chance for anybody specially interested in this or that subject or in this or that representation to listen to and see, perhaps to converse with, those whom he will always be glad to feel that he has greater personal knowledge of than can be derived only from reading.

The very comprehensiveness of the plan of the congress had its disadvantages. But where is there a rose without its thorn? In the late afternoons

and in the evenings some receptions and entertainments were held, and Friday evening Governor Francis, president of the Exposition, gave a dinner in the Banqueting Hall of the Tyrolean Alps restaurant to the officers and speakers of the congress. About eight hundred persons were present. Seats were not assigned, save at the high table, and a group of acquaintances could thus secure seats together if they chose. A delay in getting seated was due, as was learned the next day, to the refusal of the French Garde Republicaine band to play in a concession which they thought to be under German control. The band finally appeared under orders from the French commissioner. The only other musical hitch was that the band would not play " Die Wacht am Rhein " when the German commissioner was called upon to speak. Whether this fact was known to the German commissioner and accounts for his bumptious speech — a speech amiably applauded — it is vain to surmise. The French, Italian and German representative each spoke in his native tongue. Perhaps the best speceh of the evening was that of Professor Hozumi, of the University of Tokio. The key note of the speaker was, of course, the solidarity of art and science which are independent of race and country. In conclusion he said in substance: " This is the only piace in the whole world where the Japanese can meet the Russians on friendly terms." The Russian had, we believe, been given his innings the evening before at the Shaw banquet to the foreign delegates. Mr. D. J. Hill, formerly acting minister to Persia, also made a good speech.

The weather during the congress week was, on the whole, good. The arrangements reflected much credit on those who had them in charge. Whether the congress was worth all it cost in labor and money may be a question to which different answers will doubtless be given by different minds. It certainly brought together remarkable groups of men from all over the world, increased the knowledge of each other and of each other's work, and must have convinced some foreigners, who, without the liberal pecuniary inducement held out by the management, might never have visited the country, that we Americans are not wholly given over to the pursuit of the almighty dollar and the more purely material side of life.

To many the congress was of value simply for the opportunity of seeing and hearing the leaders of the world in one or another branch of knowledge,— the opportunity to get an impression of the personality of men such as Ostwald, Arrhenius, Loeb, Pfleiderer, T. Clifford Allbutt, James Bryce, Hugo De Vries, Erdmann, Adolf Harnack, Pierre Janet, S. Kitasato, Van t'Hoff, Oscar Liebreich, J. P. Mahaffy, Darboux, Henri Poincaré, Sir Wm. Ramsay, among foreigners, to say nothing of many distinguished and representative Americans.

At the medical section the attendance was excellent both in quality and quantity, and the discussions spirited and enlightening. The general attendance was small and disappointing, but this does not necessarily detract from the highest purposes and results of such a gathering.

DR. PIERRE JANET AND HYPNOTISM.

FOR many years the Lowell Institute course of lectures in this city has afforded persons interested in various departments of knowledge, opportunity to hear authoritative expositions of the most varied subjects. This year the course opens with a series of lectures by Dr. Pierre Janet of Paris on the general subject of hypnotism as it has been developed at his hands. Probably no one now living is better able to present in a dignified manner the full significance of the phenomena which we now include under the general head of hypnotism. The subject has lent itself to quackery to such an unfortunate degree that a lingering prejudice is easily observable throughout the medical profession, especially regarding the value of hypnotism as a therapeutic agent.

Such lectures as those about to be given should do much to cultivate an interest which has often been lacking in this set of phenomena and should also do its part toward removing a prejudice which in many instances has been quite unreasonable and detrimental to the real progress of medicine. Presented to a semi-popular audience Dr. Janet's lectures, but one of which has already been given, will no doubt be comprehensible to those in the audience, not particularly trained in medical matters and in medical terminology, who are capable of understanding French as it is spoken. It is a matter of regret that such a course cannot be given at first hand in English, but no doubt those who are deprived of the satisfaction of comprehending the lectures as delivered will be able to go over the ground covered in English translation shortly after. That the course will excite much probable interest and from varied classes in the community is undoubted.

The lectures, under the general title of Psychological Problems of Hypnotism, are divided as

follows: 1. The Stages of Hypnotism; the Problems which It Suggests. 2. The Memory of Somnambulists and Alternating Personalities. 3. The Problem of Suggestion. 4. Sub-conscious Effects. 5. The Limits of Hypnotism and Occult Phenomena. 6. Psychological Therapeutics. 7. Limitation of the Field of Consciousness and the Oscillations of the Mental Level. It will be seen from this list that Dr. Janet proposes to cover many of the theoretical and some of the practical applications of hypnotism and allied states.

So far as we are aware, this is Dr. Janet's first visit to this country. He is one among many prominent scientific men who have recently taken part in the congress at St. Louis. For many years he has been identified with the work upon which he is now about to lecture. He received his degree in philosophy in 1882. In 1889 his work on Psychological Automatism appeared, and in the same year, 1889, he became a professor at Paris; in 1893 he took the degree of doctor of medicine, and in 1895 succeeded Ribot at the College de France. In 1898 he took charge of a course in experimental psychology at the University of Paris and carried on researches in the psychological laboratory connected with the Salpetriere, serving under the direction of Charcot. His published work on the subject which he has done so much to develop is too familiar to require repetition here. We may be sure that coming from such a source we shall have the opportunity of hearing a presentation of the problems of hypnotism which should be of great value in elucidating many phases of the subject with which physicians as a rule are but vaguely familiar. We hope, in spite of the fact that the lectures are to be given in French, that audiences of good size will collect to hear the presentation of the subject. Whether large or small there can be no doubt that the hearers will represent men to whom Professor Janet would wish to speak.

MEDICAL NOTES.

Plague. — It is officially reported that a case of bubonic plague has occurred on a steamship recently arrived in the River Tyne, England, from Hamburg. A number of rats, presumably plague infected, had died on board the steamer, from whom, no doubt, the case developed.

Pneumonia. — According to the bulletin of the Chicago Health Department, it is stated that from statistics gathered in 1894 it was shown that the deaths from pneumonia had increased 160% during the previous thirty years. During the ten years since, the death-rate from this disease has increased from 11.35 per one thousand of the population in 1894 to 24.55 in 1903. This is an increase of 115% in the last decade, as compared with an average ten-year increase of 55% in the three previous decades.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon Oct. 5, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 52, scarlatina 12, typhoid fever 48, measles 9, smallpox 0.

Bequest to Hartford, Conn., Hospital. — By the will of Miss Mary Terry, who recently died abroad, the Hartford Hospital will ultimately receive in the neighborhood of $500,000.

Bequest to Brockton Hospital. — It is stated that Dr. George E. Keith has given $1,000 to the Brockton Hospital. Nearly $30,000 has been received in gifts by this institution during the year.

Visit of Foreign Men of Science. — Nearly a hundred members of the foreign men of science who have been attending the Congress of Arts and Sciences at St. Louis have been in Boston during the week with nominal headquarters at the Hotel Vendome, although many have been entertained in Cambridge. The time of their stay has been given up to sight-seeing rather than to the presentation of scientific communications. A reception was given them by Professor and Mrs. Hugo Munsterberg, and luncheons have also been given by the corporation of Harvard University and the Institute of Technology. To-day the guests left for New Haven where they are to be entertained by Professor Hadley of Yale.

Liberal Bequests.— By the will of the late Mrs. Sarah E. K. Potter of Boston many liberal bequests are made to diverse objects, among which those particularly interesting to the medical profession are the following: Boston Medical Library, $150,000; Kindergarten for the Blind, Jamaica Plain, $100,000; Boston Home for Incurables, $50,000; Hospital Cottages for Children, Baldwinville, $50,000; Free Hospital for Women, Brookline, $50,000; Massachusetts College of Pharmacy, $50,000; St. Luke's Hospital, New Bedford, $30,000; Association for Relief of Aged, New Bedford, $25,000; Convalescent Home of Children's Hospital, $25,000; New

England Peabody Home for Crippled Children, $25,000; Children's Hospital, Boston, $25,000; Massachusetts Eye and Ear Infirmary, $25,000; Home for Aged Couples, Roxbury, $20,000; Boston Floating Hospital, $20,000; West End Nursery and Infants' Hospital, $10,000; Home for Aged, New Bedford, $10,000; Massachusetts Infant Asylum, $10,000; New England Hospital for Women and Children, $10,000; St. Luke's Home for Convalescents, Roxbury, $10,000; Industrial Home for Crippled and Deformed Children, $10,000; the Consumptives' Home, $10,000; Sharon Sanatorium, $10,000; Boston Lying-In Hospital, $5,000; Children's Island Sanatorium, Salem Harbor, $5,000. It is rare for so wide a range of charity to be included in the will of any one person.

NEW YORK.

A POOR FOOD LAW. — In the course of a paper sent to the recent International Congress of Arts and Sciences, Dr. E. J. Lederle, for a number of years chemist to the New York Board of Health and President of the Department during Mayor Low's administration, said: "Competition in trade has become so keen and the substitution of inferior constituents in foods so general, that the honest manufacturer has hardly a chance to succeed. The use of injurious preservatives has also been practiced to a scandalous extent. The only remedy for this evil condition will be the passage and enforcement of a Federal pure food law. Such a measure has already been before Congress, but, in the absence of an aroused public opinion, the mysterious influences which bar the way to much good legislation at Washington have been able to kill it. Much the same opportunity is offered in a campaign against the vendors of patent medicines and secret nostrums. Few people understand the extent to which these articles undermine the public health, and there has been little or no attempt to assume official control over their production and sale. The remedy is official control. Makers of patent medicines, nostrums, pills, etc., should be required to place upon each bottle or package the exact ingredients it contains, and should be prosecuted for any deviation which can be shown to be detrimental to the health of persons using the remedy, or designed to perpetrate upon them a commercial fraud."

NEW BOAT FOR HEALTH DEPARTMENT. — Mayor McClellan has approved the measure authorizing an issue of $67,000 of corporate stock to defray the cost of constructing a new steamboat for the Health Department. It is to be used for the transportation of patients suffering from contagious diseases, the old boat which has been employed for this purpose for many years being now in such bad condition as to be not worth further repairing.

Obituary.

JUAN NAVARRO, M.D.

DR. JUAN NAVARRO, the Mexican consul-general at New York, died on Sept. 24, of cerebral apoplexy. He was born in Morelia, Mexico, and was graduated from a medical college in the City of Mexico. During the Mexican War he served with distinction as an officer in the army of his country, and before the end of hostilities attained the rank of colonel. In the attack on the convent of Cherubusco he was captured by the Americans and remained a prisoner for a number of months. After the close of the war he practiced his profession, and was made a professor in the medical college in the City of Mexico. Later he was elected a senator, and when Mexico was invaded by the French he was appointed surgeon-general of the Mexican Army. On one occasion he was captured by the French, but soon succeeded in making his escape from the prison in which he was confined. For many years he had served as consul-general at New York, where he was very highly esteemed.

Miscellany.

VISIT OF FRENCH PHYSICIANS AND SURGEONS TO LONDON.

As has already been announced, a party of French physicians and surgeons will visit London from Oct. 10 to the 12th for the purpose of seeing the work of the London hospitals and laboratories. The Paris Committee has already received the names of about one hundred and thirty physicians and surgeons, chiefly resident in Paris, who propose to take part in the visit, and it seems probable that before the list is closed on Sept. 30 the number may reach one hundred and fifty. Among those who have definitely arranged to join the party are the following professors of the Faculty of Medicine in Paris: MM. Berger, Blanchard, Chantemesse, Chauffard, Le Dentu, Huchard, Lucas-Championniére, Peyrot, Ricard, Lepage, Marie, Netter, Hallopeau, Porak, Reynier. It is possible that MM. Bouchard, Gariel, Gautier and Gauchard may also be able to join the party. In addition, the names of some twenty-five other physicians and surgeons to the hospitals of Paris have been received, and some representatives of French provincial medical schools will also be among the visitors. As already announced, the London Committee has arranged to give a dinner to the French visitors at the Hotel Cecil on Wednesday, Oct. 12. Any medical man resident in London

who may wish to attend this dinner is requested to communicate with one of the honorary secretaries of the Executive Committee, Dr. Dawson Williams, 2, Agar Street, Strand, W.C.; or Dr. W. Jobson Horne, 27, New Cavendish Street, Portland Place, W. — *British Medical Journal.*

RUSSIAN PRECAUTIONS AGAINST CHOLERA.

According to the *Lancet* the chief medical inspector (Russian) has returned from a six weeks' tour in the country bordering on the Persian confines where he concerted measures for preventing the importation of cholera from Persia. He asserts that the most comprehensive arrangements have been made particularly to keep the workmen's quarters of the towns clean and the work people well supplied with good water, food, and healthy houses. Orders have been issued for instant isolation in case of suspected illness and the disinfection of all things connected with the sick. At the ports on the Caspian Sea observation stations have been established, with special steamers attached to the health service, and a complete series of hygienic stations have been provided for the whole length of the river Volga, the great water highway leading from the Caspian Sea through a great part of Russia. Particularly Astrakhan and Baku have to undergo a thorough cleaning. In the latter town incredible filth had been found in the workmen's quarters. There unhealthy houses are to be closed until they are put into a sanitary condition, and temporary barracks meanwhile are to be provided. The medical staff and sanitary officers have been largely increased, hospital accommodation has been selected, and abundant supplies of disinfectants and medicines are being laid in. "Unfortunately," says the notice in the *Novoe Vremya*, "our towns are in such an insanitary state that it will require tens of millions of roubles and years of time to answer to the medical requirements." The Transcaucasian territory is the real danger zone. Temporary hospitals have been installed there, and the medical staff has been reinforced, including drafts from the Red Cross Society. Chief Inspector Anrep does not anticipate an invasion of cholera this year, but profiting by experience gained from past epidemics he entertains grave fears for next spring and summer. Further details as to cholera in the near East will be found in the communication from the British delegate to the Ottoman Board of Health, which appears in another column of the *Lancet.*

Correspondence.

INTERNAL SECRETIONS.

PHILADELPHIA, Sept. 28, 1904.

MR. EDITOR: In its issue of the 15th inst., your JOURNAL published a review of the first volume of my work, "The Internal Secretions and the Principles of Medicine." Your reviewer doubtless believes that he is justified in referring as he does to the conclusions advanced therein. I would like to inquire, however, whether he has read the book at all. If he has not, as suggested by the fact that all his quotations are from the preface, I beg that this fact be made known through your columns. If he has read it with due care, I must insist on his publishing the scientific reasons he has deemed such as to render my views worthy of the scornful treatment they have received at his hands. In other words, I believe he should unequivocally demonstrate that the following fundamental conclusions, all of which he quotes, are untenable: (1) That "the secretion of the adrenals reaches the pulmonary alveoli;" (2) that it "holds in combination the various constituents of hemoglobin and endows both the latter and the plasma with their affinity for oxygen;" (3) that "contraction of the heart-walls is in great part due to oxygen-laden adrenal secretion;" (4) that "the adrenals are directly connected with the anterior pituitary body;" (5) that the latter is "the most important organ of the body as governing center of the adrenals and, therefore, of all oxidation processes;" (6) that "the posterior pituitary is the chief functional center of the nervous system;" (7) that the spleen and pancreas "unite in the formation of trypsin;" (8) that "a portion of this ferment passes into the splenic vein as an internal secretion and plays a leading part in immunizing processes." If he can show that these conclusions are utterly groundless, he need go no further, since the remaining ones will then fall of their own accord.

As your reviewer's comments are sweeping, it is incumbent upon him to controvert all these conclusions in order to justify his position. If his reasons are adequate, I will acknowledge my error publicly. If, on the other hand, they are not sound, I will combat them with the same respect for scientific accuracy that I require of him.

Again, as we are dealing with organs the functions of which are totally unknown, even a plausible working proposition, on the order of Ehrlich's side-chain theory, is of great value. Now, the subject matter of "Internal Secretions," etc., has been worked out on a much higher plane; *confirmed* experimentally and clinical data were alone used as factors; and each deduction submitted was the result of a process of reasoning in which preconceived interpretations, *i. e.*, theories, played no part. The quantity of material used (though the first volume is but an outline of my views) was evidently not lacking; the *Weiner klinische Rundschau*, for instance, recognizes that "an enormous number of experiments and innumerable observations and reports are grouped." And yet, I have asked no one to accept my deductions otherwise than as working propositions. May I also ask your reviewer to prove that they are not even entitled to that position?

He will doubtless conclude that a considerable labor is being imposed upon him. He must not overlook the fact, however, that he has incurred considerable responsibility through his closing paragraph, *viz.*: "This book has been reviewed in terms of praise by some of our leading periodicals. The publication of such works and their favorable review in representative journals will tend to discredit American medicine in the eyes of the scientific world." As the originator of this patriotic thought, he obviously becomes its sponsor — a post which involves the duty of proving that he is not himself gratuitously fouling his own nest. He is now given an opportunity to furnish this proof and, at the same time, to show that the eighty and odd periodicals which he directly and indirectly chides for their "terms of praise" (and to which I am also greatly indebted for many valuable and courteous criticisms) intrust their books for review to men who are his inferiors in knowledge and judgment.

Your reviewer is not asked to reveal his identity if he concludes that a cursory perusal of my work has misled him. If he maintains his position, however, it seems only fair that he should defend it openly.

Respectfully yours,
C. E. DE M. SAJOUS, M. D.

[We regret that our notice of the first volume of Dr. Sajous' book has appeared to him unfair. If this be true, it was not due to lack of careful consideration of the book on the part of our reviewer. We await with interest the appearance of the second volume and beg to assure Dr. Sajous that his entire work will then receive a careful and impartial review. — EDITOR.]

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 24, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Diarrheal Diseases.
New York . .	3,908,644	1,224	491	31.94	10.37	2.29	1.55	16.66
Chicago . . .	2,021,086	457	144	36.10	7.87	1.60	1.60	17.72
Philadelphia	1,407,968	401	113	27.43	9.72	1.99	3.99	8.94
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	181	63	32.04	3.87	3.87	2.21	8.29
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	89	—	28.07	11.23	—	5.60	13.47
Cincinnati . .	338,377	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	57	21	28.06	12.28	3.50	3.50	17.54
Boston . . .	617,950	216	81	24.07	9.26	1.85	1.39	9.73
Worcester . .	136,925	29	14	20.69	3.45	—	—	17.24
Fall River . .	119,349	27	15	37.03	14.81	3.70	—	23.31
Lowell . . .	104,402	39	21	28.20	7.69	2.56	—	12.82
Cambridge .	100,998	21	9	38.09	9.52	—	—	23.81
Lynn	73,875	25	10	16.00	—	4.00	8.00	4.00
Lawrence . .	72,348	18	7	38.88	16.66	—	—	27.77
Springfield .	72,020	13	1	15.40	7.70	—	—	7.70
Somerville .	70,413	22	13	22.72	4.54	—	—	18.18
New Bedford	68,883	28	10	35.71	10.71	—	—	32.14
Holyoke . . .	50,538	10	2	40.00	—	—	10.00	20.00
Brockton . .	46,801	10	4	30.00	—	—	—	—
Newton . . .	39,310	6	1	33.33	—	—	16.67	—
Haverhill . .	39,061	7	1	14.30	14.30	—	—	—
Malden . . .	37,205	10	4	—	—	—	—	—
Salem	37,188	16	7	—	—	—	—	—
Chelsea . . .	36,499	13	7	7.70	23.10	7.70	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	7	4	28.60	—	14.30	—	14.30
Everett . . .	30,209	8	4	—	—	—	—	—
North Adams	29,201	8	1	25.00	—	—	—	—
Quincy . . .	26,798	10	3	40.00	20.00	—	—	10.00
Gloucester .	26,121	—	—	—	—	—	—	—
Waltham . .	25,797	8	2	12.50	25.00	—	—	—
Brookline . .	25,576	7	2	14.30	—	—	—	14.30
Pittsfield . .	22,870	6	1	—	—	—	—	—
Medford . . .	21,956	10	3	10.00	—	—	—	10.00
Chicopee . . .	21,692	5	1	—	20.00	—	—	—
Northampton	20,314	8	3	—	—	—	—	—
Beverly . . .	15,807	4	1	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	5	0	20.00	—	—	—	—
Adams . . .	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	3	—	—	—	—	—	—
Newburyport	14,478	7	3	28.60	14.30	—	—	28.60
Woburn . . .	14,315	5	3	40.00	—	—	—	40.00
Melrose . . .	13,819	12	3	—	—	—	—	—
Westfield . .	13,809	1	—	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	3	1	33.33	—	—	—	—
Revere . . .	13,609	2	2	—	—	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . .	12,394	—	—	—	—	—	—	—
Southbridge .	11,716	1	1	100.00	—	—	—	—
Watertown .	11,575	3	1	—	33.33	—	—	—
Weymouth .	11,350	1	1	33.33	—	—	—	33.33
Plymouth . .	11,139	7	2	28.60	—	—	14.30	—

Deaths reported, 3,050; under five years of age, 1,081; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 912; acute lung diseases 277, consumption 300, scarlet fever 7, whooping cough 11, cerebrospinal meningitis 18, smallpox 2, erysipelas 2, puerperal fever 16, measles 3, typhoid fever 61, diarrheal diseases 431, diphtheria and croup 61.

From whooping cough, New York 5, Chicago 3, Pittsburg 1, Boston 2. From measles, New York 3. From scarlet fever, New York 1, Baltimore 4, Boston 1, Worcester 1. From cerebrospinal meningitis, New York 13, Boston 2, Lowell, Brockton and Waltham 1 each. From erysipelas, Philadelphia and Baltimore 1 each. From smallpox, Chicago 2.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Sept. 10, the death-rate was 17.5. Deaths reported 5,118; acute diseases of the respiratory organs (London) 61, whooping cough, 64 diphtheria 63, measles 53, smallpox 4, scarlet fever 23.

The death-rate ranged from 5.1 in Hornsey to 33.0 in Great Yarmouth; London 15.2, West Ham 16.5, Brighton 14.0, Plymouth 28.4, Bristol 13.7, Birmingham 17.5, Leicester 14.7, Nottingham 19.1, Liverpool 24.7, Bolton 18.4, Manchester 21.2, Salford 23.7, Halifax 15.0, Bradford 16.5, Leeds 14.2, Sheffield 22.6, Hull 21.2, Cardiff 15.1, Rhondda 24.3, Merthyr Tydfil 20.1, Bootle 23.6.

METEOROLOGICAL RECORD.

For the week ending September 24, **in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:**

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	Rainfall in Inches.
S.. 18	30.02	72	82	61	75	72	74	S	W	S	W	10	18	C.	C.	0
M. 19	30.14	66	72	59	72	76	74	N	W	S	E	10	7	C.	F.	0
T.. 20	30.04	64	73	56	83	85	84	S	E	S	W	9	6	F.	O.	0
W. 21	30.24	59	60	49	66	59	62	N	N	N	W	18	20	C.	F.	0
T.. 22	30.54	43	51	35	49	56	52	N	W	S		12	6	C.	C.	0
F.. 23	30.54	48	62	35	62	61	62	N	W	S	W	5	12	C.	F.	0
S.. 24	30.08	58	68	49	72	69	70	S	W	S	W	12	18	O.	O.	0
Mean	30.23		67	48			68									0

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. Means for week.

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheatre of the Boston City Hospital on Oct. 7, from 10 A.M. until 12.30 P.M.: Appendicitis; Hydrocele Hernia; Amputation leg; Hydrocele; Acetonemia; Appendix; Gall Bladder; Dislocation of elbow; Fecal fistula.

RECENT DEATHS.

PHINEAS J. HORWITZ, M.D., died this week at Bar Harbor. He was a veteran of the Mexican and Civil wars and formerly medical director in the navy, his death occurring at the ripe age of eighty-two years. He leaves two sons, one of whom, Dr. Orville Horwitz, is professor of surgery at the Jefferson Hospital in Philadelphia, and one daughter. Following the Civil War Dr. Horwitz had charge of the tabulation of casualties during the war.

JOHN PURCELL, M.D., a native of Ireland, who was for thirty years a well-known physician of New York City, died at his summer home at Larchmont, on the Sound, on Sept. 26, at the age of eighty-six years.

MERRICK BEMIS, M.D., M.M.S.S., died in Worcester, Oct. 3, 1904, aged eighty-four years.

APPOINTMENT.

DR. J. BERGEN OGDEN has been appointed medical chemist to the Carney Hospital from Oct. 1, 1904.

BOOKS AND PAMPHLETS RECEIVED.

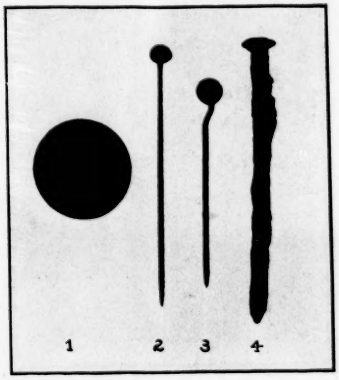
A System of Practical Surgery. By Prof. E. von Bergmann, M.D., Prof. P. von Bruns, M.D., and Prof. J. von Mikulicz, M.D. Vol. III. Translated and edited by William T. Bull, M.D., and John B. Solley, M.D. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1904.

American Edition of Nothnagel's Practice. Diseases of the Intestines and Peritoneum. By Prof. Dr. Hermann Nothnagel. Edited, with additions, by Humphrey D. Rolleston, M.D., F.R.C.P. Authorized translation from the German, under the editorial supervision of Alfred Stengel, M.D. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

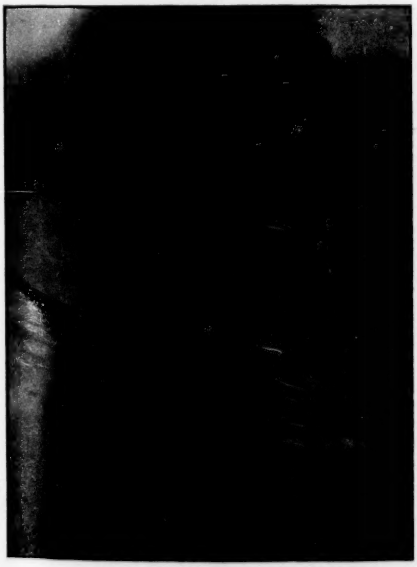
Index-Catalogue of The Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second Series, Vol ix. Washington: Government Printing Office. 1904.

Report of the Superintendent of Government Laboratories in the Philippine Islands for the Year ended September 1, 1903. (From Fourth Annual Report of the Philippine Commission.) Bureau of Insular Affairs, War Department.

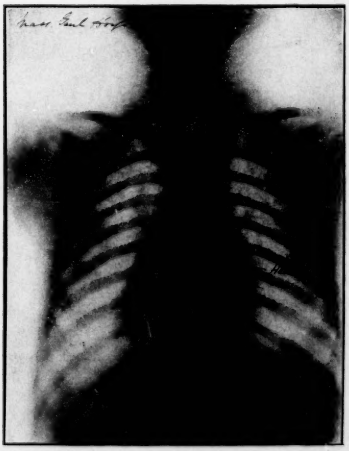
The Optical Dictionary. An Optical and Ophthalmological Glossary of English Terms, Symbols and Abbreviations, together with the English Equivalents of some French and German Terms relating to Physical, Physiological and Pathological Optics, Optical and Other Instruments of Precision, and Terms Descriptive of Color and Photo-Chemistry, to which are added a number of General and Mathematical Expressions. Edited by Charles Hyatt-Woolf, F.R.P.S. Philadelphia: P. Blakiston's Son & Co. 1904.



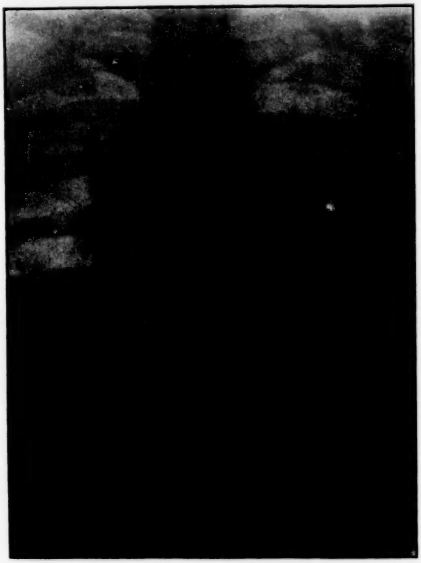
The four foreign bodies, actual size.



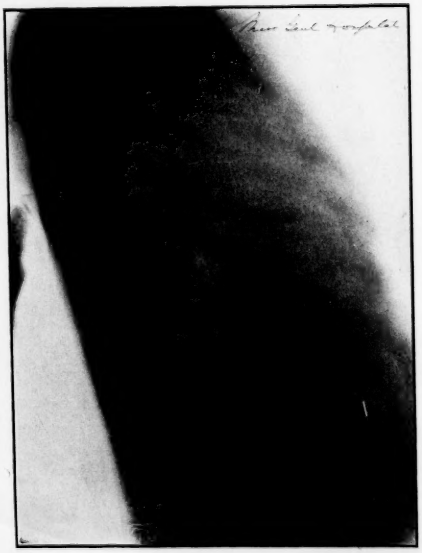
CASE 1.



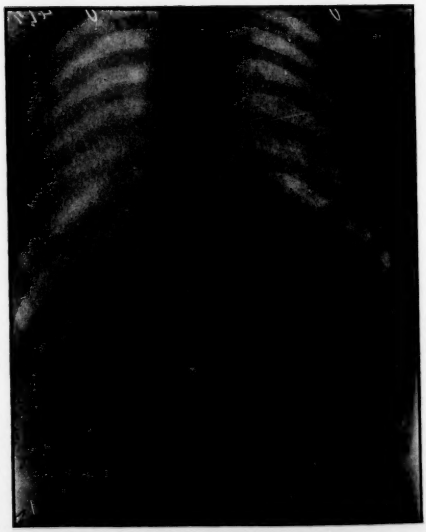
CASE 2.



Case 3. — Front view.



Case 4. — Side view.



Case 4. — Back view.

Original Articles.

THE EXTRACTION OF FOREIGN BODIES FROM THE BRONCHI.*

BY A. COOLIDGE, JR., M.D., BOSTON,
Physician for Diseases of the Nose and Throat, Massachusetts General Hospital; Clinical Instructor in Laryngology, Harvard Medical School.

FIVE years ago I reported a case in which I had removed a broken tracheotomy tube from the right bronchus by means of a straight speculum through the tracheal wound.[1]

Although before this time Killian had introduced straight tubes, not only through a tracheal opening, but also through the natural passages, the subject of bronchoscopy was a new one, and had only a few times been applied to the extraction of foreign bodies. As indicated in the discussion on my paper, it was often considered wise to let a foreign body remain in a bronchus rather than to attempt to remove it. I think that it now would be an exceptional case in which a surgeon would advise waiting. This difference in the relative dangers of operating and of delay is due wholly to the knowledge of the fact that the bronchi can be explored through straight tubes easily and with comparatively little danger to the patient.[2]

During the last five years a large number of cases have been reported, and a goodly number of papers on the subject have appeared in our journals. For a review of this work I cannot do better than simply refer to a recent monograph by von Eicken,[3] first assistant in Killian's clinic in Freiburg.

Since reading my paper, I have removed a foreign body from a bronchus in four cases, three after tracheotomy, and one with the aid of Killian's bronchoscope through the natural passages.

CASE I. — This case has been briefly reported before.[4] Edward B., age thirty-five, admitted to the Massachusetts General Hospital in the service of Dr. Warren, Dec. 24, 1900. Two days previously he had lost a silver dime in his nose, which had thence fallen into the trachea. A low tracheotomy had been done before admission, but attempts to seize the coin had then been unsuccessful. There were no symptoms of discomfort in breathing. The x-ray showed a foreign body just to the right of the median line at the fifth costo-vertebral articulation.

With the patient on his back, without a general anesthetic, a straight urethral speculum, 3½ inches long, ⅞ inch in diameter, was introduced through the tracheal wound and pushed down nearly to the bifurcation. The coin was seen in the upper part of the right bronchus, and removed with alligator forceps. The illumination was by a head mirror and reflected light.

Dec. 29. — Patient discharged well.

CASE II. — Nettie H., age twenty-two months, entered the hospital April 21, 1902, in the service of Dr. M. H. Richardson. Twelve days before admission, after being left alone, the child was found choking and cyanosed. Soon recovered, but has had frequent attacks of choking and coughing with perfectly normal intervals.

On admission nothing abnormal was found on percussion or auscultation. Respiration was normal, except for occasional spasmodic cough. The x-ray showed a shawl pin, head down, apparently in the right bronchus.

April 24. — The trachea was opened by Dr. Richardson below the isthmus of the thyroid. The tracheal speculum was introduced, pushed into the right bronchus until the point of the pin entered the tube, when it was seized with alligator forceps and removed. Illumination by head mirror and reflected light. The pin was 1⅝ inches long, with a head ⅛ inch in diameter.

May 13. — Patient left the hospital well, and has remained well to the present time (May, 1904).

CASE III. — Miss Lena G., age twenty-four, entered the hospital March 21, 1904, in my service. The day before, while holding a scarf pin between her teeth, a friend startled her, and she inhaled the pin. At first there were absolutely no symptoms. Thinking that she had swallowed it, she excited vomiting, when she began to have a pain through the center of the chest, with cough, and a little bloody expectoration. The pain continued through the night and then disappeared, except a little in the left fourth interspace on coughing.

On admission, the x-ray showed a pin, with the point at the fourth interspace on the left side, and the head directly below it. A lateral view showed it about one inch from the vertebral column. Under ether anesthesia, I opened the trachea, introduced Killian's bronchoscope and pushed it into the left bronchus. I did not have an attachment for maintaining respiration in the right bronchus. The foreign body could not be seen, and the bronchoscope was removed, as the patient stopped breathing. It was necessary to do artificial respiration for a minute or two, before normal respiration was established. This was repeated, and in consequence, a tracheotomy tube was put in, and the patient sent to the ward.

The next day the x-ray showed the pin in the same place. On the third day, without a general anesthetic, the trachea was sprayed with cocaine, and the short tube inserted through the wound. The pin had in the meantime become dislodged, and was seen high up in the left bronchus, and was removed easily. The illumination was by Killian's electric head light. The pin was 1½ inches long with a head ⅜ inch in diameter.

March 31. — Patient discharged well.

CASE IV. — Robert D., age eight, entered the hospital May 12, 1904, in the service of Dr. A. T. Cabot. In June, 1903, the patient said that he had swallowed a nail, but this was not believed. Within a few days he developed a right-sided bronchitis which, although better, has persisted since. He also had slight, periodic asthmatic attacks on exertion, but these have disappeared in the last three months. Recently, on account of the localized bronchitis, the story of the nail was remembered, and an examination with the x-ray showed a foreign body apparently in the right bronchus.

The patient was given $\frac{1}{100}$ grain atropine subcutaneously and etherized. He was placed on a table on his back, with his head hanging over the end. With Kirstein's autoscope the interior of the larynx was brought into view, and cocainized with a 1% spray. I then introduced Killian's bronchoscope (20 cm. long, 8 mm. in diameter) without difficulty, and pushed it down the trachea, using cocaine spray through the tube. The nail was readily seen projecting from the right bronchus into the trachea, with the point imbedded in the tracheal wall. When the nail

* Read at the Twenty-sixth Annual Meeting of the American Laryngological Association, Atlantic City, June 3, 1904.
[1] New York Medical Journal, Sept. 30, 1899.
[2] Wood: Philadelphia Monthly Medical Journal, Sept. 30, 1899.
[3] Archiv. für Laryngologie, 15 Bd. 3 Heft.
[4] BOSTON MEDICAL AND SURGICAL JOURNAL, April 10, 1902.

was touched with cotton to clear the field, or with Killian's forceps, coughing was excited, and a little bleeding. After two or three attempts the nail was freed from its impacted position, and although it slipped from the forceps, it followed the tube as it was withdrawn through the glottis, and was seized in the pharynx. The illumination was by reflected light. There was a little blood when the nail was first seized, which stopped immediately. The patient did not suffer in the least from the operation.

May 16. — Patient discharged well, except for a few coarse rales on the right side, especially in the scapula region, the same condition as before the operation.

May 29. — The child's father, who is a physician, reports that the patient is well, and that no rales are to be heard.

From the experience of these cases I have but little to add to the conclusions presented with my first case. I am, if anything, more in favor of operative interference in cases of inspired foreign bodies than at that time, and inclined to attempt their removal through the natural passages in a larger number of cases. The latter demands that there be at hand not only the proper bronchoscope, but what is equally important, proper instruments for working through the tube after it is in place. For the lower operation, almost any hollow tube of proper caliber, and long slender forceps will carry the operator well into the primary bronchi. The introduction of the bronchoscope after previous tracheotomy presents no difficulties. A general anesthetic is not necessary nor advisable if a tracheal opening already exists, and in many cases the tracheotomy might well be done with cocaine. The reflex respiratory inhibition which has been carefully studied by Crile is sometimes annoying, and may be serious. In my cases it appeared only under a general anesthetic, and did not occur after a subcutaneous injection of atropine and local application of cocaine, as recommended by Crile.[5]

In regard to the choice between the tracheal and natural passages, in the first two cases the presence of a tracheal opening or the absence of the proper instruments left no opportunity for choosing. In the third case, a pin, point upwards, was shown by the x-ray to be at the bottom of the left primary bronchus, with the point at the fourth interspace, and the head an inch and a half lower. I did not think that I could succeed in reaching it through the mouth, and feared that an unsuccessful attempt to do so might harm the patient. In the fourth case the point of the nail was probably as high as the bifurcation, a typical case for an attempt by the natural passage. Bronchoscopy through the natural passages is, of course, not so very simple and easy as through the tracheal wall, but the introduction of the bronchoscope in this case presented no difficulty. The added difficulty was due to the smaller calibre and greater length of the tube. With Kirstein's autoscope the glottis was seen, and after spraying with 1% cocaine, the bronchoscope passed easily. It is, of course, a satisfaction to the patient and to the surgeon to avoid tracheotomy, and there is no doubt that tracheotomy is a source of danger in itself. An unsuccessful attempt through the natural passages followed by tracheotomy not only lengthens the operation, but it must add a little to the danger of sepsis. The mouth and pharynx cannot be made surgically clean, and it is difficult not to come in contact with them. This, I think, should be considered, especially when there is probable wounding of the trachea or bronchi, or where any circumstance is likely to prolong the search for, or extraction of, the foreign body.

[5] Medical News, Feb. 24, 1900.

A CASE OF MALIGNANT ENDOCARDITIS.*

BY J. F. ALLEYNE ADAMS, M.D., PITTSFIELD.

MR. E. A. B., aged thirty-five, born in England, married, telephone manager.

On the morning of July 13, 1903, he was attacked with a chill, and came to my office, saying he could not get warm. He had been swimming the afternoon before, had been a long time in the water, and felt cold. He had previously been well, except that he had a bronchial cough for a short time the last winter, and in May complained of *muscæ volitantes* for a few days, caused by constipation. He was a man of nervous temperament and active habits, who worked very hard at his business and devoted the latter part of each afternoon to athletic pursuits, such as golf and swimming. I found his temperature normal at ten o'clock. He went home and I called to see him at 3 P.M. Temperature then 103, and the same in the evening, falling to 102 between these times. He complained of "soreness of the ribs," meaning the short ribs on both sides, especially the left. It hurt him to take a long breath, and he would frequently blow out the breath, explosively. His wife said this had been a habit with him. Examination of the heart and lungs revealed nothing abnormal. The area of the spleen was somewhat enlarged; liver normal size; abdomen rigid without tenderness or pain. In the evening he was dull, saying little and hardly answering questions. He said he could not see clearly. From this time the temperature continued high and irregular, rising to 104 ⅘ on the fifth day. He was dull and sometimes mildly delirious during the first week. On the third day, an erythematous eruption appeared on the lower part of the chest, in front, disappearing the next day. On the fifth day, the abdomen was greatly distended, causing much pain and distress. This was relieved by a dose of calomel followed by a saline, which caused the expulsion of much gas.

On July 18, the sixth day, he was removed from his home to the Pittsfield "House of Mercy" where he was quite comfortable for ten days, with temperature rather lower than the first few days. He was still dull and talked very little, but was quite rational. He had no more soreness of the ribs, no dyspnea, no cough, and had the general aspect of typhoid fever. But no rose-spots appeared, there was no diarrhea,

* Read at the Annual Meeting of The Massachusetts Medical Society, June 7, 1904.

and the Widal test gave a negative result. This was made by Dr. H. C. Emerson of Springfield, Mass., with blood taken on the third, seventh, and thirteenth days of the disease, and also by Dr. R. A. Woodruff of Pittsfield on the eighteenth day, each time with negative reaction. Dr. Woodruff also made a blood count on the eighteenth day, showing:

Red corpuscles	3,200,000
White corpuscles	18,000
Hemoglobin	48%

On July 27, the fifteenth day, he began to have epistaxis, the blood running back into the throat and most of it swallowed, blackening the stools. This continued for a week, and considerable blood was lost in this way.

On July 28, the sixteenth day, on making an examination with stethoscope, I discovered a *heart murmur*, systolic, at apex. This was soft, smooth and faint, and heard over a small area, below the nipple, not at all at the base of heart or anywhere above the nipple. The lungs were normal; there were no heart symptoms. The temperature was lower than usual in the morning, being 100; but it rose to 102⅔ in the evening, to 103⅔ the following morning, and to 104⅓ the following evening. From this date, the patient rapidly grew worse; the murmur became louder each day and was heard over a larger area, until on Aug. 1, the twentieth day, it was a loud, rough, churning sound, heard all over the heart area and well around on the left side of the chest.

On July 30, the nineteenth day, he began to have dyspnea at times, breathing rapidly for a few respirations. The following day, the dyspnea was increased, and in the evening he would at times open the mouth wide and seem to gasp for air.

From July 30 to Aug. 2, there was retention of urine and the catheter was used, the amount drawn being three pints a day. The urine of July 30 contained a trace of albumin, but there was none previously nor later. Aug. 3, the urine was passed involuntarily and so continued until his death, the amount three pints or more. He grew more dull and looked very white and anemic. There was a reaching out with the hands and picking at the air. Epistaxis ceased on Aug. 2.

On Aug. 4, twenty-third day, the bowels moved involuntarily. There then appeared a partial paralysis of the right arm and leg, with a dropping of the left upper eyelid. There was no picking at the bedclothes after this, and the patient lay perfectly still. At times there was a gasping for breath, but never any orthopnea.

Aug. 5, twenty-fourth day, his color was ashy, and for the first time there was difficulty in swallowing. A few petechiæ appeared on the chest and abdomen about Aug. 2 and gradually increased in number until they covered the upper chest, abdomen and forearms.

Aug. 6, twenty-fifth day, died at 12.45 noon. He was unconscious during the night and morning, but could be made to swallow milk or medicine if spoken to.

During the last few days there was dullness over the base of both lungs, with absence of vesicular murmur, but without rales. There was no cough at any time. The pulse, throughout the attack, was soft, full, and regular. Toward the last it grew very soft and compressible, though still full and regular. Its frequency was from 80 to 100 until the sixteenth day, when the heart murmur appeared, and after this was 120 or more. The respiration ranged from 18 to 30 until the sixteenth day, and after that from 30 to 50. Urine was secreted freely to the end. There was never any diarrhea.

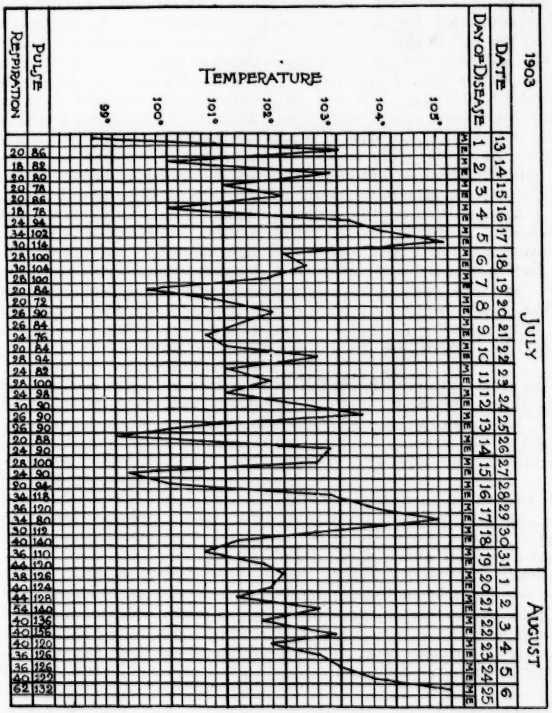
TREATMENT. — At the outset he had a dose of calomel, followed by a Seidlitz powder, and this was repeated on the fifth and eleventh days. During the first few days he took salicylate of sodium, grs. viii, every three or four hours. After this he was given a tablet containing guaiacol, menthol, thymol, and eucalyptol, every two hours until the end of the second week. Strychnia was given throughout the attack. During the last week he also had tr. digitalis and an anema thrice daily of a quart of normal salt solution, fully half of which was retained. At night he usually had one or two doses of codeine, ¼ grain each, which quieted restlessness and produced sleep. Tepid sponging was used several times daily, and was usually followed, especially during the first and second week, by a drop of temperature of one or two degrees. The bowels were kept open by enemata.

AUTOPSY. — *Heart:* The pericardium contains about one ounce of clear fluid; no adhesions. Size of heart 4½ by 5½ inches. Many petechial hemorrhages on anterior surface, particularly over right auricle and ventricle, just within the visceral serous covering. Heart fat fair in amount. Heart muscle flabby. Veins of heart distended with dark, liquid blood. On section, *right auricle* contains post-mortem clots and partly organized ante-mortem clots. The auricular appendage has organized clots (marantic). *Right ventricle* contains ante-mortem clots fully organized; probably marantic in origin. *Tricuspid valves* seem to be competent, but covered with a fibrinous exudate of recent origin, and valves are somewhat thickened. Papillary muscle and chordæ tendineæ practically normal. *Left auricle* negative. *Left ventricle* contains ante-mortem and post-mortem clots. *Mitral valves* are thickened and eroded and are covered with an ulcerative exudate forming excrescences of various sizes, some as large as a hazel nut, and in the exudate are pockets containing pus. Papillary muscle atrophied. Cordæ tendineæ thickened and imbedded in the inflammatory exudate. *Heart muscle* is pale and shows areas of brown atrophy, with areas of recent myocardial inflammation. Coronaries patent; no sclerosis. A few patches of beginning sclerosis in the aorta. Aortic and pulmonic semilunar valves normal.

Left lung: Free from adhesions. Petechial hemorrhages cover the visceral pleura. Upper

lobe crepitant in its upper and anterior portion. The rest of this lobe and the lower lobe firm to touch and dark in appearance. On section, lower half of upper lobe in a state of red hepatization. Lower lobe in an organized pneumonic condition. Bronchi contain a frothy, bloody exudate. Branches of the pulmonary artery supplying the lower and posterior portion of the upper lobe and the whole of the lower lobe contain thrombi, more or less organized. Bronchial mucous membrane thickened and injected.

Right Lung: Free from adhesions. The posterior portion of the upper lobe is hard and



nodular and shows four or five old scars. Anterior portions of upper, middle and lower lobes are crepitant throughout. Posterior portion of all the lobes firm and solid to the touch and dark in appearance. The visceral pleura shows many petechial hemorrhages. On section, the bronchi contain frothy, bloody material and the mucous membranes are injected. The hard nodule in apex proves to be an infarct partly organized. The middle and lower lobes are pnuemonic, and the pulmonary vessels supplying the posterior portion of the lobes contain thrombi.

Spleen measures 6 by 4½ inches; very soft in consistency and of a chocolate color. On anterior surface there is an infarct 4 by 1½ inches, which extends through the organ from before backward. Also at the posterior and dependent angle there is an infarct 1 by 1 inch. This infarct contains liquid blood, on section. Spleen pulp very soft; all markings very indistinct. The large infarct is hard and cuts firm, and over the infarcted area there is a perisplenitis.

Left kidney 5½ by 3½ inches. Fatty capsule well marked. Fibrous capsule thickened and strips readily. Surface of kidney studded all over with petechial hemorrhages, some of them being ⅛ by ⅛ inch; and on section these hemorrhages extend into the substance of the organ. The inferior pole of the kidney is blue in appearance. Several small white infarcts. Cortex ½ to ¾ inch thick. Malpighian bodies distinct in appearance. In the pelvis of this kidney and extending into the substance of the organ, there is a small abscess.

Right kidney 5 by 3 inches, similar in appearance to the left, but without the abscess.

Liver 10 by 9 by 3½ inches, surface smooth, consistency fairly solid; free from adhesions; light yellow in color; no infarcts; cuts fairly firm, and yet the substance in scraping breaks readily.

The organ gives all the appearances and conditions of passive congestion.

Stomach normal in size; mucous membrane thickened and studded with petechial hemorrhages.

Intestines normal, except being in a state of passive congestion.

Appendix six inches long; filled with concretions, and adherent to the cecum in a circular manner, for three inches; not inflamed.

Pancreas 7 by 1¾ inches, fairly firm, and appears normal.

Brain and *Spinal cord* not examined.

Bacterioscopic examination of smears from the various organs and the blood from the heart showed staphylococci and a short rod bacillus, presumably the colon, as a terminal infection.

Portions of the heart muscle, spleen, liver and left kidney were examined microscopically at the Bender Laboratory in Albany, and the following report received:

Spleen shows a recent anemic infarct.

Liver: In cells about the glands of the lobules is an accumulation of pigment, of light yellow color, appearing in fine granules. The capillaries of center of lobules are slightly dilated; liver otherwise negative.

Heart muscle: Muscle fibres are slightly vacuolated. Nuclei somewhat pycnotic. The intermuscular tissue moderately edematous. On the endocardial surface are portions of small marantic thrombi.

Kidney: Tubules moderately dilated. Intertubular tissue edematous. In the lumen of tubules is an accumulation of fine granular coagulated material, but no definite casts. Glomeruli slightly lobulated. The enlarged capsular space contains granular coagulated material similar to that in tubules. There is no accumulation of lymphoid cells or increase of intertubular tissue.

Diagnosis. — At the outset the case looked like a severe attack of grippe, but, the fever continuing, without local symptoms, it was called provisionally atypical typhoid fever, though the negative Widal tests and the absence of diarrhea and rose-spots made the accuracy of this diagnosis seem very improbable. After the heart murmur appeared, the diagnosis of malignant endocarditis was made; and this was borne out by the rapid progress of the heart symptoms, and the supervention of local conditions, evidently embolic, of which the most striking were the double pneumonia and the partial right hemiplegia from cerebral embolism. The leucocytosis as well as the petechial eruption tended still further to support this diagnosis. This was confirmed by the autopsy, which revealed ulcerative endocarditis, double pneumonia, thromboses of branches of the pulmonary vessels, parenchymatous nephritis, infarcts in spleen, lung and kidney, abscess of left kidney, and passive congestion of liver and other organs, with staphylococcus infection.

This disease, which is variously designated malignant, ulcerative or infectious endocarditis, bears a general resemblance to typhoid fever, for which it is frequently mistaken. The temperature, however, does not follow the typhoid curve, but is distinctly that of a septic fever, being high at the outset, and subject to great and irregular diurnal variations. It differs from simple endocarditis in the greater size and abundance of the vegetations on the cardiac valves, the breaking down of these vegetations, with ulceration and suppuration, the numerous infarctions of other organs, the general violence of the symptoms, and the almost invariable fatal termination. Although the heart is the seat of the primary lesion, it is a curious fact that the heart symptoms are never very pronounced, that the heart murmur is seldom heard in the early stages of the disease and is sometimes wholly absent, the true nature of the disease being only learned at the autopsy.

Two symptoms which are common in malignant endocarditis were absent in this case — namely, chills and sweating. Sweating did occur toward the end of the attack, but not during the first two weeks, and the initial chill was the only one.

Before the appearance of the heart murmur, there was no possibility of making a definite diagnosis. The negative Widal reaction made the diagnosis of typhoid fever more and more doubtful, this test being applied on the third, seventh, thirteenth and eighteenth days. This almost positively excluded typhoid, and yet there are cases closely resembling typhoid, but not giving the Widal reaction. In these cases a bacillus has been found which appears intermediate between the typhoid and colon bacillus, and has been named the paratyphoid bacillus. The disease is usually of a milder type than typhoid, although fatal cases are reported.

On the other hand, the presence of the Widal reaction would not absolutely exclude malignant endocarditis, for Dr. W. Hale White reports a case in Grey's Hospital, London, of true malignant endocarditis of streptococcal origin which gave a positive Widal reaction on four occasions. Dr. Henry L. Elsner, in the *Medical News* of May 9, 1903, says, in reference to the diagnosis, that, "considered collectively, typhoid fever shows a surprisingly infinitesimal number of permanent heart lesions during the acute febrile period, or following. Hence, with evidences of endocarditis and the typhoid condition, we are justified in assuming that the disease is not typhoid fever. To make the diagnosis positive ante-mortem, we must have the presence of physical signs referable to the heart, and these we have in the majority of our cases before death. However, the endocardium may be plastered with vegetations without giving rise to physical signs. The presence of embolic infarcts is a valuable diagnostic fact."

Osler (Practice of Medicine, 4th ed., p. 705) says: "Perhaps a majority of the cases not associated with puerperal processes or bone disease are confounded with typhoid fever. A differential diagnosis may even be impossible, particularly when we consider that, in typhoid

fever, infection and parotitis may occur." He adds: "Points which may guide us are, the more abrupt onset in endocarditis, the absence of any regularity of the pyrexia in the early stage of the disease, and the cardiac pain. Oppression and shortness of breath may be early symptoms in malignant endocarditis. Rigors, too, are not uncommon. There is a marked leucocytosis."

In this case we had the abrupt onset and irregular pyrexia; but never any cardiac pain and little or no oppression or shortness of breath until the last week. Leucocytosis was very marked on the eighteenth day.

Although malignant endocarditis most commonly occurs as a secondary affection as in acute rheumatism, pneumonia, or septicemia, it is recognized as sometimes occurring as a primary disease. Such seems to be the case under consideration. At any rate I have been unable to discover any antecedent septic condition. All the lesions found were apparently secondary to the endocarditis. A possible exception is the nephritis, but of this there had been no symptoms, for I found the urine normal two months before this illness and also at the beginning of the attack. As for the small abscess in the left kidney, this was most likely metastatic. If these renal conditions are considered secondary, as they probably should be, we seem compelled to call the case one of primary malignant endocarditis. Perhaps it would be better described as a case of septic endocarditis, in which the origin of the infection was not discovered.

The autopsy and bacteriological examinations were made by Dr. R. A. Woodruff, of Pittsfield. The case was seen in consultation by Drs. Henry Colt and L. C. Swift of Pittsfield and by Dr. W. Gilman Thompson of New York.

DISCUSSION.

DR. C. F. WITHINGTON of Boston: I have been very much interested in this extremely carefully prepared report of this case of Dr. Adams'. He mentioned the differential points in the diagnosis of this disease and typhoid fever. It seems to me that it is one of the most important discriminations to bear in mind. In the cases I have seen the temperature was almost always irregular with marked evening exacerbations. There were other signs of sepsis, including the one he mentions and emphasizes — petechiæ on the surface of the body. I saw a case a few weeks ago at the New England Hospital with multiple abscesses. There was an abscess of the ankle joint, one on the buttocks and one on the back. The sero-pus from one of these abscesses showed the streptococcus.

One very important point is the prognosis. It is a disease that is almost invariably fatal, although I have seen two cases which I have reason to believe were ulcerative endocarditis and which did not die. Two years ago I saw the first of these. The temperature was irregular, chills, sweating, with no other explanation than that suggested by the endocardial murmur. The diagnosis was confirmed by Dr. Whittier, and the patient, after a protracted illness, recovered. I have recently had a case at the hospital of a man of twenty-six. He entered the hospital April 19. He had had measles four weeks previously, but had recovered from them, and two days later had a chill, followed by an irregular temperature, cough, sweat and chills. Four days before coming into the hospital he had phlebitis, the limb being dark purple and swollen. The heart was enlarged, the action very violent, and the rate 160 to 170. There was marked gallop rhythm. He also had limited but distinct areas of consolidation in both lungs, which were believed to be embolic pneumonia. Six weeks before coming into the hospital he had had acute gonorrhea. That took place on the 17th of March, and the measles on the 22d of March. Forty-eight days after the gonorrhea blood cultures were taken and the gonococci were found. There was no doubt about the accuracy of the observations, and the diagnosis of malignant gonorrheal endocarditis seems established. Dr. Adams' case was from staphylococcus infection. This one was from gonococcus infection. This patient gradually improved, and his temperature became normal. For a month he has been practically well, his phlebitis has largely disappeared, and he is walking about. He has no symptoms at all now, though there is still a murmur. The white count has gone from 16,200 down to 9,400. I think we may say that although such cases are usually fatal, and the prognosis always exceedingly grave, occasional cases may recover.

DR. HENRY JACKSON of Boston: It has always been my opinion that malignant endocarditis was fatal. I saw the case referred to by Dr. Withington in consultation with Dr. Ames, and we were much pleased to have the diagnosis confirmed by him. I look upon the case as the first one I have known to get well of this disease.

DR. G. S. C. BADGER of Boston: There are two clinical forms of malignant endocarditis, — the non-septic and the septic. The former is attended by bland infarcts, suppuration does not follow, and therefore there are no abscesses. Chills and sweating are not very common in this type of the disease. In the septic variety the infarcts suppurate, abscesses develop, and chills and sweating are very common. In the case mentioned by Dr. Withington there were multiple abscesses accompanied by chills and sweating. In the case reported by Dr. Adams the infarcts were bland and chills were not common. Both these varieties may be due to the same organism; for example, the streptococcus.

ON "VARIANT" INFECTIONS: WITH REPORT OF CASES.

BY THOMAS HORACE EVANS, M.D., PHILADELPHIA.

THE nominalism in medical theories must be resigned in view of the principles of cellular pathology and its further development.

No longer will a disease be thought of to possess, as an entity, the body and mina of the unfortunates who suffer it. For we are able, now, to reduce disease to a matter of physiochemic reaction. And the terms of disease are to be read in "replacement of radicals"; and in certain peculiar, primary, protoplasmic changes affecting the original faculties of irritability, contractility, metabolism, respiration and reproduction; and in the modifications of tissue and organ forms and functions in consequence.

Neither can we neglect the factor of personality in disease. Inheritance and environment have put together a vitalism, a mechanism, if you will, that will take its own nature into the pathologic equation.

I have been interested to note the effects of a

small epidemic of erysipelas within one block of my office, during the recent two months (May and June). All the cases referred to below occurred in that vicinity, a laboring district, and the free intercourse of the people therein will be of importance in weighing the facts. Additional cases occurred, not in my practice, during these two months and in the neighborhood.

Erysipelas, at date, is not a reportable disease in Philadelphia.

CASE I. Mrs. D., forty-nine years, began a typical attack of erysipelas two days before I was asked to visit the case, May 18, 1904. Facial swelling and edema, with boardlike resistance (on palpation); redness and pain being intense.

In a few days the whole cranial scalp was invaded. Ichthyol 50% and dil. phenol applied, Tr. Ferri Chlorid. and salines internally administered. No unusual symptoms developed and a cure was effected in fifteen days, at which time the case was dismissed with suitable tonics. However, on May 29,

CASE II developed. Esther D., the ten-year-old daughter of Mrs. D., began to complain of sore throat, and irritative cough which seemed accountable on the score of roughened vesicular breathing and a temperature of 102.4° F.

Usual treatment, however, failed to relieve. But on ordering a Tr. Ferri Chlorid. mixture the symptoms rapidly diminished. After-treatment consisted of iron, quinine and strychnine, cure resulting in the course of eleven days.

CASE III. Harry A., eight years, living half a block beyond the preceding family.

May 20, gave history of having hair cut in neighboring barber shop three days previously, after which redness and swelling appeared around, and particularly behind, the right ear, extending over the helix. This redness and swelling had partly diminished when I first saw the case. At that time I noticed that the right parotid gland seemed swollen, and diagnosed unilateral mumps. Ichthyol was applied, and a Pot. Citrat., Liq. Ammon. Acetat. mixture given for the fever, which was 101.5° F. The parotid swelling continued until a small abscess developed beneath the ear, and to prevent any mastoid infection, the abscess was incised. Considerable purulent matter readily discharged and relief occurred at once. The left parotid showed a sympathetic inflammation soon afterward, which was reduced with an ichthyol ointment.

At this time iron was ordered, and the boy was well in about two weeks.

CASE IV. Mr. A., the father of Harry A., developed sore throat May 26, which was quickly relieved on being touched with iron and pot. chlorat.

CASE V. Elsie B., fourteen years, living on the next street, parallel with the one where the preceding families reside, developed sore throat June 5. It appeared to be a follicular tonsillitis. There was also a peculiar, general glandular swelling behind the ears and along the mandible, as well as by the margins of the trapezius and sternocleidomastoid muscles.

Internal ferric medication brought about some relief, but the disturbing symptoms continued active for over eight days; meanwhile,

CASE VI. Mrs. M., aged seventy-two years, the grandmother of E. B., and living in the same house, developed erysipelas June 11. She told me that for two weeks her nose had pained her, and that latterly there had been swelling which became so intense as finally to alarm the family.

From the external meatus of the nose the erysipelatous inflammation spread viciously, covering the whole of the face, nose, both ears, and part of the frontal and parietal scalp.

Usual treatment rapidly prevailed, although two relapses complicated her recovery. The patient, at this writing, July 13, is still very feeble, by reason of age and a chronic nephritis which shows a tendency to acute exacerbations.

CASE VII. Before Mrs. M.'s recovery, on June 29 her grandson, Harry B., twenty-three years of age, developed a follicular tonsillitis similar to that which his sister had had, but fulminating and with a higher range of temperature. Vigorous medication locally and internally soon controlled the case, and his cure followed in six days.

CASE VIII. Mrs. B., the mother of H. B., showed some redness and swelling of the skin below the right ear; swelling of a patchy, erysipelatous nature, on June 20, to which was applied ichthyol, with the best results.

I do not care to say whether it was due to some passing irritation or really of specific cause.

CASE IX. Alice S., twenty-nine years, residing in the house where my offices are, June 2, and also 10, showed slight erythematous patches on center of forehead, which were relieved by iron and quinine internally, with local ichthyol plaster. Also,

CASE X, Harry S., aged sixty-nine, father of A. S., June 5, developed a typical erysipelatous patch around the left eye, and on the left aspect of the nasal arch. After five days of regular iron and ichthyol treatment all the trouble disappeared. He was left with a quinine tonic.

I could parallel this epidemic with cases of other infections. The argument, however, will speak for itself.

I believe it was Dr. M. H. Fussell who, in a lecture to the Senior (1899) Medical Class of the University of Pennsylvania, remarked on the frequency with which sore throat appears in families at the time of scarlet fever or diphtheritic infection therein,— sore throat which cannot be determined to be specific.

But why should we not associate such opportune appearances? We have evidently to deal with a specific cellular reaction, the mode of infection of which should be only too easy to explain. The marvel is that isolation of erysipelas, as well as other transmissible diseases, should not be the rule.

Possibly the day is near when variant manifestations of disease will be clearly recognized. The relation of tonsillitis, glandular involvement, and mucous reactions of many sorts are to be plainly seen in many forms of so-called specific disease. With a recognition of this fact, infectious variants have a most decided element of danger.

Samohrd [1] speaks of a general reaction of mucous membranes in typhoid attacks, when he describes the symptoms of hemorrhagic typhoid. It is possible, then, that from these mucous membranes typhoid infection may be disseminated.

The writer [2] ventures to suggest that there may be varying modes and manners of infection according to the state of the cycle of development of the pathogenic organism, as that proceeds or its toxins develop. Further, it is quite possible that the essential tissues of the body have a selec-

[1] Sbornik Klinicky, Tomo V, fasc. 1, 1903.
[2] Paratyphoid—Medical News, September 3, 1904.

tive preference for certain toxins or micro-organisms, or for them in certain stages of their cycles of development.

Following this theory we may come to find out that a number of related diseases are really only different aspects of one great process, in which variable factors play a part, factors of the life cycle of the parasite, or micro-organism, its toxins, and the physiochemic nature of the histologic tissues invaded.

The elemental histologic tissues are four. We should be able to reduce disease to a least common multiple of these elements, and in doing so, perhaps we may find that the primary changes are not so numerous; anabolic and katabolic elevations and depressions, chemic changes and functional mutations, with, on the contrary, a greater number of diseases traceable to the same micro-organism, toxins, or species of parasite. It is thus that we may come to admit "variant" infections.

GASTRIC ULCER IN CHILDREN.

BY ELBRIDGE G. CUTLER, M.D., BOSTON.

(Concluded from No. 14, p. 372.)

LEITH [33] records a girl aged ten, always remarkably well, who, on the 5th of February, developed croupous pneumonia of the left lung which went on to convalescence. The beginning of March she began to cough and to perspire freely at night. The temperature which had been normal a few days before began to rise, especially toward evening. The physical signs were negative over both lungs save under the left clavicle where the percussion note gradually became somewhat hyperresonant and the breathing cavernous with plentiful crepitations. Soon two small abscesses formed in the second left interspace toward the axilla. A few days later a left-sided empyema was opened with resection of portions on the fourth and fifth ribs. There was no improvement. The temperature remained irregular and the pulse and breathing rapid. Delirium became more continued and severe. Restlessness and delirium increased with frequent moaning but no complaint of pain. Death on April 25.

At the post-mortem examination an empyema cavity was found on the left side with a perforation of the diaphragm to the left of the pericardial sac. Blood was found in the intestines and the stomach showed an ordinary perforating ulcer nearly circular, measuring ¼ in. transversely and $\frac{3}{16}$ in. longitudinally. It was just in front of the greater curvature, 4½ in. from the cardiac and 8 in. from the pyloric end. It was terraced on the side next the greater curvature and rounded and smooth on the other. There was no sign of thickening around it on the mucous coat; its floor was formed by the peritoneal and remains of the muscular coats. The ulcer was adherent by its floor to the spleen, some suppurative lymph intervening and a suppurating track passed upward and inward between the adherent spleen and stomach directly to the perforation in the diaphragm.

Donne's [17] case, which reports a cure from simple lesion in a child, is as follows:

In the midst of a punctated redness within the upper half of the small curvature there was a dark-red plaited place, a little bit depressed beneath the surface of the mucous membrane, the size of a ten-sou piece. Divergent rays seemed to run out from its center in every direction. The depressed spot was also in folds and the fibrous tissue was thickened showing a cure from a simple lesion.

The following case reported by Goodhart [25] I have included among the chronic ulcers from the description of the ulcer. Perhaps it should be classed with the acute cases:

Mr. Cock, one of the senior students and late resident obstetric assistant at Guy's Hospital, was called to see a new-born infant vomiting blood, from which it died thirty hours after birth. It was apparently well-formed and healthy, though a possibility of congenital syphilis existed. The stomach was distended by blood-clot and on turning this out, a small oval ulcer about ⅛ in. long was seen at the cardiac end close to the greater curvature. The edge of the ulcer was peculiarly sharp and raised from the surrounding mucous membrane, it might almost be said to be knife-shaped and it was firm in texture and pink or vascular in appearance. In the bottom of the ulcer was a dark speck which, under a lens, proved to be an open vessel, a branch of an artery running along the greater curvature. The remainder of the stomach was healthy.

Cade [11] reports as follows:

Two months old. For one month sick with yellowish diarrhea and vomiting; this lasted for a fortnight and then death resulted.

At the autopsy on opening the abdomen there was a pocket containing yellowish fluid, very acid, and in considerable quantity. The pocket was limited behind by the pancreas, below by the mesocolon and the transverse colon, and above and in front by the posterior surface of the stomach and anterior part of the liver. Pressure on the stomach made the gas escape into the pocket.

The stomach was opened and showed towards the pyloric region above a single ulceration, rounded, larger than a fifteen-centime piece, and with clean edges, adherent at its anterior portion to the liver save below where one could pass a grooved probe without difficulty.

The stomach contained a yellowish liquid, acid, like that in the retro-stomachal pocket. There was no other lesion of the gastric mucous membrane. The vomiting and diarrhea had no special characteristics. There was never hematemesis or melena.

Wertheimer's [48] case of supposed gastric ulcer in a girl of ten is interesting, and though the child recovered, the history is so clear that I think he established his diagnosis. For several weeks the child had suffered from loss of appetite, feeling of fullness and distention in the gastric region and occasional nausea after meals. She looked badly. One day, on jumping from a ladder, the child had a sudden intense pain in the epigastrium which after a time abated. Several hours later the pain increased, nausea set in and a small amount (a few teaspoonfuls) of clear fluid blood was vomited; the next day there was blood in the stools. For a week there was daily, sometimes several times in the day, hematemesis; it was always small in amount, sometimes fluid, sometimes loosely clotted. Blood was found in the stools several times. Before the hematemesis there was almost always a severe cardialgic attack and nausea. Besides the cardialgia after food there was several times vomiting in the early morning with a fasting stomach, without previous nausea, of a watery, sour fluid. The appetite was much diminished and the bowels were constipated. Between the attacks there was epigastric tenderness and a tense belly. The child was kept in bed and given an exclusive milk diet for a week, which was well borne and caused neither pain nor vomiting. Later, white bread, milk soups and wheat flour or groats were added; then raw ham, cold

chicken and Bordeaux wine were allowed, and Carlsbad and Bilin water were given and an ice-bag was kept on the epigastrium. In the course of five weeks the child was well.

Lebert,[31 32] in his Breslau statistics, includes one case under his table of chronic simple gastric ulcer between the ages of five and ten years, but I have failed to find a detailed statement of the case.

The following three cases occurred in the Massachusetts General Hospital and are reported in full:

Massachusetts General Hospital, West Medical Records, V. 416, p. 34. June 25, 1889.

J. K., twelve years. Mother states that last summer boy was ill three weeks with inflammation of the bowels. Since then she says the boy has always been rather pale and has not seemed as strong as he used to be. Has noticed that boy's face and pillow would be stained with blood at times in the morning. Fifteen days ago boy had a pretty sharp attack of pain in the epigastrium, lasting two days. About two hours after beginning to complain of pain he vomited about a cupful of blood. Since then has occasionally complained of pain but does not appear to have more after eating. Appetite has been poor. The boy is nervous and bashful and cannot give much history. Says attacks have been short in duration and local; the pain just above and to the right of the umbilicus. Bowels regular.

Physical examination. Well nourished. Color good. Tongue clean. Heart, lungs and abdomen negative. No tenderness. ℞ Milk (peptonized) ℥ii hourly. June 29: Doing well. No vomiting, pain or tenderness. Hungry. ℞ Beef juice ℥ss 4 id.

June 30: *Urine.* Normal, acid, 1,026. Albumin, none. Sediment, slight. July 8: Has had no pain or distress. Constipated. Enemata. Sitting up. ℞ Some jelly. July 10: ℞ One dropped egg on toast. July 11: ℞ Two eggs. July 14: ℞ A little tender steak or chicken for dinner. July 16: Toast 3, t i d. Liquids. July 20: Liquids, custard. July 21: ℞ Extra diet (with care) without vegetables. July 26: For some days has been about yard. July 31: Doing well. Aug. 5: Sent to Convalescents' Home. Discharged.

Massachusetts General Hospital, East Medical Records, V. 433, p. 166. 1891, Aug. 12.

M. H., eight years. Family history unimportant. Personal history: Measles in infancy. Grippe last winter. Present illness: One week ago vomiting (food and bright red blood); pain immediately after eating; constipation; much headache. No nose bleed; vomited blood several times since. Blood in stools (?). Temperature 101° F., pulse 120, respiration 24.

Urine: Pale; slightly acid, 1,019; no albumin. Sediment, considerable; mostly urates and uric acid crystals, few bladder cells, leucocytes and blood.

Physical examination: Small, thin child. Face and mucous membrane pale. Tongue moist, clean. Pulse regular in force and rate, good strength. Heart and lungs not abnormal. Abdomen negative except area of tenderness just below ziphoid. Diet: Milk ℥iv with lime water ℥ii every two hours in divided doses. Aug. 14: Perfectly comfortable. No vomiting since entrance. Sleeps well. Milk ℥vi every two hours. Aug. 16: Stronger. No vomiting. No tenderness. Milk ℥viii every two hours. Aug. 17: Temperature normal. Tendency to constipation. Aug. 22: Now taking milk ℥vi every hour during day. Sleeps all night. No vomiting. No distress in stomach. One egg. Aug. 23: Two eggs daily. Aug. 24: Soft toast. Aug. 25: Steak or roast at noon. Two eggs daily. Aug. 26: Sits up. Aug. 29: Three eggs daily. Enema only p r n. Sept. 2: Herpes on legs. Aristol and later zinc and starch powder. Sept. 7: Steadily improved. Sept. 11: Discharged well.

Massachusetts General Hospital, East Medical Records, V. 577, p. 34. Feb. 7, 1903.

M. S., six years. Family history unimportant. Habits: Three cups of tea daily. Candy. Personal history: Measles, chicken pox and whooping cough. Dysentery when one year old. One year ago complained of a lump on right side of neck and this was soon followed by earache and a discharge from right ear. Operated upon ear at Eye and Ear Infirmary. Has never been a strong child. Appetite fair. Bowels regular. No cough or digestive trouble this winter. Has never had any cuts or wounds.

Present illness: For past week mother noticed that patient was restless. Three days ago complained of headache and pain in right side of abdomen and next day said that right hip was tender and painful and cried when it was moved. No swelling or redness. Appetite poor. Bowels moved yesterday. This afternoon coughed occasionally and dozed considerably. No vomiting. At half past four said that she wanted to spit and raised a little blood. This was immediately followed by bleeding from the mouth and nose. About one quart of blood came away, some in clots. Blood, bright red. Child did not cough or appear to vomit at time of attack. Given medicine sub-cu. and brought to this hospital. Slight bleeding from mouth on the way.

Physical examination: Well developed and fairly well nourished. Pupils equal and react. Skin and conjuctivæ pale. Tongue moist, slight, white coat. Teeth in fair condition. Throat negative. *Heart,* Apex. Impulse palpable and dullness corresponds in fifth space at nipple line. No + to right. Action slightly irregular. Sounds of good quality. A loud systolic murmur heard over whole precordia with maximum intensity at apex transmitted to axilla and heard in back. P. 2d + +. *Pulses,* equal, synchronous, of fair volume and tension. Arteries not palpable. *Lungs,* nothing abnormal found. *Abdomen,* full, soft, tympanitic. No masses or tenderness. *Spleen* not enlarged. *Liver,* dullness sixth rib to costal margin. Edge not felt. Right hip very tender on slightest motion, thigh slightly abducted and flexed. Muscular spasm on attempted motion. Point of tenderness over saphenous opening. No tenderness over sciatic nerve or any portion of thigh and leg. Reflexes all present and normal. No edema. Rachitic rosary present. Temperature 102° F., pulse 136, respiration 32. Hb. 85%. Whites, 25,300.

Urine: Normal, acid, 1,026, albumin slightest possible trace. Sugar and bile none; diazo, faint. Chlorides, normal. Sediment: a rare granular cast, leucocytes, bladder cells and squamous epithelium. Urates +. Diet, liquids only. Water, + by mouth. ℞ Strychnia gr. $\frac{1}{30}$ every four hours if awake. Hot water bottle to right hip and keep quiet as possible. Feb. 9: ℞ Extract cascara gr. iii, later a suds enema if necessary. Feb. 10: Temperature 100–101° F., pulse, 120; respiration, 25-30. Yesterday had good result from suds enema, containing a considerable amount of dark, old blood. No blood in stool this morning. Takes nourishment well. To-day hip can be moved in every direction without any pain. ℞ Suds enema with care. *Blood:* Hb. 60%. Whites, 27,600; reds, 3,460,000. Stained specimen shows slight degree of achromia. Red corpuscles not otherwise remarkable. No blasts seen. Differential count: Polynuclear neutrophiles, 88%; lymphocytes, 10%; eosinophiles, 2%. Feb. 11: Bismuth subnitrate ℥ss 4 i d. Omit strychnia. ℞ Orange

juice. Feb. 13: No more blood in stools. No nausea or vomiting. Takes nourishment well. Sleeps nicely. Physical examination negative except heart and pallor of skin. Feb. 15: ℞ Dr. Shattuck's Gastric Ulcer diet. Feb. 16, at 6.45 P.M., complained of nausea; vomited three small clots and one long thin clot of blood. Not any feces. ℞ Morphia, gr. ¼ o.c. Nothing by mouth. Ice bag to abdomen. Hb. 60%. Whites, 19,600.

Urine: Normal acid, 1,016; albumin, sugar, bile, and diazo, none. Chlorides, normal, Feb. 17: ℞ Liquids, ℥ii every three hours. Bismuth subnitrate, ℥ss every three hours. No more blood in vomitus. Feb. 19: ℞ Make liquids ℥ss every hour. No blood in stools. Seems very weak. Heart is irregular. Feb. 20: Dr. Shattuck's Gastric Ulcer diet with great care. Feb. 21: *Hb.* 70%. *Whites*, 14,000. Feb. 22: No further sign of bleeding; seems to be gaining strength. Takes food well. Heart exam. idem. Feb. 24: ℞ Bed rest. ℞ Blaud's pill powdered, gr. ii t i d.

Urine: Feb. 25: Normal, acid, 1,015; albumin, sugar, bile and diazo, none. Chlorides, normal. Color much better and seems stronger. Up in chair. Feb. 25: ℞ Cand. B. two hours. Feb. 26: *Hb.* 70%. March 1: Sits up. Feels finely. Still somewhat weak and pale. No gastric symptoms. March 4: *Urine:* Normal; acid, 1,019; albumin, sugar, bile and diazo, none. Chlorides: normal. Up and about the ward. Still somewhat pale. Takes nourishment well. No gastric symptoms. March 6: ℞ Liquor antiseptic M. G. H. mouth wash 2 i d. March 5: Doing finely. March 7: Seems to gain strength slowly. March 10: This morning at six o'clock had a severe nosebleed which was checked by a wad of paper between upper lip and gum. At 10.45 A.M., vomited about 2 oz. of blood. At 1 P.M. vomited ½ oz. of blood mixed with curdled milk and having an odor suggestive of gastric contents. Seemed excited and restless. ℞ Stop everything by mouth except cracked ice. ℞ Morphia gr. ⅛ s.c. given twice. ℞ Suprarenal Extract gr. iv every three hours by mouth.

March 11: *Urine:* Normal; acid, 1,020; albumin, sugar, bile and diazo, none; chlorides, normal. ℞ Rectal feeding: Milk ℥iii with care to tolerance; egg, i; salt, ℥ss every eight hours. March 13: Is pale and weak but has had no more hemorrhages. Retains nutrients well. Seen by Dr. A. T. Cabot, who advises continuation of medical treatment. ℞ Fairchild's milk, ℥i every four hours. March 14: Water, ℥ii. Glycerine enema. March 15: No further signs of hemorrhage. Seems weak and sleeps considerably. Fairchild's milk, ℥i every two hours. ℞ Sip water. March 16: ℞ Fairchild's milk ℥ii every two hours and water ℥ii every two hours. March 17: ℞ Make milk and water ℥i every two hours. No further gastric symptoms. Retains all nourishment and feels a little stronger.

March 19: *Urine:* Normal; acid, 1,018; albumin sugar, bile and diazo, none. Chlorides, normal. Hb. 70%; reds, 5,124,000. ℞ Make milk ℥iii every two hours and water an equal amount. March 21: No nausea or vomiting. Doing well. Milk, ℥v every two hours. March 22: ℞ Milk, ℥vii every two hours. March 23: Increase to gastric ulcer diet. March 24: No further evidence of hemorrhage. No gastric symptoms. Seems brighter. ℞ Omit rectal feeding. ℞ Bismuth subnitrate ℥ss t i d.

March 26: *Urine:* normal; acid, 1,022; albumin, sugar, bile and diazo, none. Chlorides, none. March 27: Feels much better and color is improving. March 30: Doing finely. April 2: Feels much better. No further gastric symptoms.

Urine: Normal; acid, 1,016; albumin, sugar, bile and diazo, none. Chlorides, normal. April 5: Feels perfectly well. Color is better. April 6: Hb. 70%. April 8: Doing well.

April 9: *Urine:* Normal; acid, 1,016; albumin, sugar, bile and diazo, none. Chlorides, normal. April 10: Much brighter and stronger. April 12: Small nosebleed this afternoon. April 13: Doing well. April 14: ℞ Cand. B. two hours +.

April 16: *Urine:* Normal; acid, 1,017; albumin, sugar, bile and diazo, none. Chlorides, normal. Up about ward. No gastric symptoms. April 19: Still somewhat weak but is doing well. April 22: Seems stronger.

April 24: *Urine:* Normal; acid, 1,020; albumin, sugar bile and diazo, none. Chlorides, normal. April 26: Up and about ward. Feels perfectly well. April 30: Seems perfectly well, but is still pale.

Urine: Normal: acid, 1,025; albumin, sugar, bile and diazo, none. Chlorides, normal. May 1: ℞ Blaud's Pill gr. v 2 i d p c. May 2: Still pale. Systolic murmur still present. May 3: *Hb.* 70%. May 5: Feels well. About ward all day. May 8: *Urine:* Normal; acid, 1,016; albumin, sugar, bile and diazo, none. Chlorides, normal. May 9: Doing nicely. May 12: Plays about hospital all day and seems perfectly well. May 13: Directions given concerning diet. Is to continue Bismuth and Blaud's Pills. Discharged well. Relieved of mitral regurgitation.

The *situation* of the ulcer in the *acute cases* was: near the cardia, 1; in the pyloric third of the greater curvature, 1; in the anterior wall of the greater curvature near pylorus, 1; in the anterior wall near lower curvature, midway between fundus and pylorus, 1; cardiac end close to greater curvature, 1; toward pyloric end, above, 1; scattered over inner surface several ulcers, 1; posterior wall at cardiac extremity, close to greater curvature, 1; posterior surface, close to greater curvature and nearer pyloric end, 1; anterior wall, cardiac end, close to greater curvature, 1; and in greater curvature middle zone, 2 ulcers; in center of lesser curvature, 1; lesser curvature one inch from pylorus, 2 ulcers, 1; anterior wall near pylorus close to lesser curvature, 2 small ulcers, 1; beginning of cardia, 1; middle of stomach, 1.

In the cases developing immediately after birth, six in number, two showed the ulcer near the pylorus, three showed the ulcer near the cardia, and one had it midway between the pylorus and cardia. In three of these cases vomiting of blood was a symptom throughout, in one vomiting and diarrhea occurred, the stools showing blood only toward the end. In two cases the symptoms were not given. The region affected in four out of the six cases was the cardiac or central portion of the stomach near the great curvature, the usual seat of hemorrhagic erosions. The blackened, lacerated appearance in at least two of the cases suggests effusion of blood into the mucous membrane as the cause of the necrosis. Numerous instances of hematemesis or melena shortly after delivery are reported, which have recovered. In these the erosion was probably not so extensive as to prevent rapid healing.

In six of the acute cases the ulcers were apparently an intercurrent affection, one occurring after severe burns of the arms and legs, and

one each in croupous pneumonia, typhoid fever, diphtheria, tuberculosis, and a gangrenous affection of the mouth.*

The *situation* of the ulcer in the *chronic cases* was: 2 cm. from the pylorus, lesser curvature, posterior wall, 1; locality not given (Lebert), 1; in front of greater curvature, 4½ inches from cardia, 8 inches from pylorus, 1; posterior wall of stomach, 1; 1½ inches from pylorus, posterior wall, 1; upper half of smaller curvature, 1; at the cardia, 1; smaller curvature, 1; cardiac end close to greater curvature, 1; toward pyloric region above, 1.

The *situation*, then, in the *acute cases* was: near the cardia in 5, near the pylorus in 6, and midway between in 2 cases, and generally distributed in 2. In the *chronic cases*, near the cardia in 2, near the pylorus in 3, midway between in 4, and in 1 the location was not given. There seems then from these cases to be a greater frequency of the ulcer at the pylorus in the acute, and in the middle portion of the stomach in the chronic cases, which is absolutely the reverse of what is usually taught.

The following anatomical differences in the mucous membrane of the stomach in the child from that in the adult are the only ones I have been able to find:

Werber † says the glandular portions of the stomach of nurslings differ essentially from that in adults, in that the mucous glands in the newborn are present in greater numbers; in the glands of the fundus, labdrüsen, the simple tubular form predominates; further, these simple glands are evenly distributed over the whole surface of the stomach, instead of, as in the adult which are less numerous, have a more complicated structure, are also evenly distributed between the mucous glands, and are present in somewhat larger number only in the pyloric portion. Lymphoid follicles (Lenticulärdrüsen) were not seen by Werber.

Klein ‡ says the cylindrical epithelium in the newborn everywhere, even in the fundus, extends more than half-way into the follicle. He did not find either lymph follicles or Peyer's patches.

That these structural differences may well have a bearing on the infrequency of peptic ulcer in the child is quite probable.

With reference to the kind of gastric juice secreted by the child I have only been able to find the following record by Leo,§ to the effect that the sole difference between it and that secreted by the adult was the less amount of hydrochloric acid in the child.

Sex. — The preponderance of the female in these cases is remarkable. Of the twenty-nine cases, eighteen were females, five were males, and in six the sex is not stated. Of the acute cases, thirteen were females, two were males, three not stated. Of the chronic cases, five were females, three were males, three not stated.

Age. — Of the six cases occurring soon after birth, the youngest was thirty hours old, and the others were two, five, seven, eleven and fifteen days respectively. There were eight cases less than seven years of age, and nine cases between eight and thirteen.

The *symptoms* of gastric ulcer in children vary with age. In infants the first thing observed is restlessness and hematemesis or melena; there were evidences of pain in one case. In older children dyspepsia or abdominal pain usually precedes the more characteristic phenomena. But here, too, as in some of the very young cases, there were no symptoms in two, and one simply felt badly before the final catastrophy.

Pain in the epigastrium after food is stated to have been present in five cases and in one it was extremely severe. It usually began soon after a meal and sometimes persisted during the whole period of digestion or till vomiting occurred. Exacerbations occurred from time to time, probably an indication of extension of the ulceration. A violent attack not rarely preceded the occurrence of hematemesis or perforation. The pain was located usually in one spot in the epigastrium, occasionally it was in the back, sometimes it was spoken of generally as pain in the belly. A tender spot was frequently found below the end of the xyphoid cartilage, and pressure here was said to excite nausea and vomiting in some instances. General tenderness of the epigastrium was spoken of, and once, general abdominal tenderness.

Vomiting was mentioned in sixteen cases and was usually not immediately after food. It was preceded by nausea and sometimes by increased secretion of saliva as well. In all cases the vomitus was acid, sometimes spoken of as markedly so, but I find no record of an abnormal quantity of HCl.

Hematemesis was observed in eleven of the cases, six acute and five chronic. It occurred shortly after a meal. It was more frequently bright blood.

The *appetite* seems not to have been affected much, indeed in several instances food is reported to have been taken with avidity. In the chronic cases the ulceration exerted an inhibitory influence in the growth and nutrition, one of the cases being specially marked in this respect. Dilatation of the stomach from pyloric stenosis was spoken of in one instance. Perforation occurred in several of the cases. Eructations, fulness, distention, burning and nausea are mentioned the same as in adult cases though less frequently.

Treatment. — The patient, at any age, should be kept quiet in bed for at least three weeks and perhaps longer, according to the symptoms. When there is tenderness hot fomentations or poultices are advised during its continuance.

Diet. — Infants at the breast may be nursed a short time every hour if the milk agrees, but only a small amount of milk should be allowed

* Charcot (Mém. de Soc. Biol., 1853, p. 88) found two ulcers in the stomach of a six-months' foetus which was affected with small-pox. Malinowski (Index Medicus, Vol. V, p. 575) found an ulcer in the stomach of a child ten years old, who died of diphtheria, and Rilliet and Barthez (Maladies de l'Enfance, 2d Edit., Vol. II, p. 881) describe a somewhat similar case. (Fenwick *loc. cit.*)

† Werber. Verhandlungen der naturf. Ges. 3 u. Freiburg. Bd. III, Heft. 3 u. 4, p. 137.

‡ Stricker Gewebelehre. Magen.

§ Magenausspielung im Sauglingen. H. Leo. Zeitschrift für praktische Aerzte Frankfurt-am-Main, 1896 v, s. 447.

at each nursing. With bottle-fed children, cows' milk modified according to the modern methods and diluted with barley or Vichy water may be allowed with proper precautions. It may have to be peptonized before being given. With older children we must still make milk the chief article of diet, but soups, broths, meat extracts, raw or cooked meat juice, meat jellies and egg white may be alternated with it. As improvement advances the diet may be cautiously increased. Doubtless nutrient enemata would at times have to be given.

Medicines. — For pain opium in some form is the safest in the child and should be given usually by the mouth in doses sufficient to meet the indication. The administration of bismuth I believe to be advisable as in the adult. Small or single hemorrhages take care of themselves; when profuse or repeated, surgical consultation is obligatory, meanwhile exhibition of suprarenal gland extract or saline infusions may be tried. A bland form of iron should be begun as soon as permissible and later arsenic or cod-liver oil, perhaps be added. The diet must be regulated for several months after apparent cure.

BIBLIOGRAPHY.

[1] Baginsky: Lehrbuch der Kinderkrankheiten für Aerzte und Studirende, Leipzig, 1902, p. 838.
[2] Barlow: Trans. Path. Soc., London, (1886–7) 1887, Vol. xxxviii, p. 141.
[3] Binz: Berliner Klin. Wochenschrift., 1865, April 10, No. 15, p. 148.
[4] Billard, C.: Traité des Maladies des Enfants, Paris, 1828, p. 325.
[5] Bloch: Archiv. f. Kinderheilkunde, Band, 28, 1900, p. 68.
[6] Blumensath: Inaug. Dis. Kiel, 1902, Aug. u. Sept., No. 96.
[7] Bramwell, B.: Clinical Studies, Edinburgh, 1902–3, Vol. i, pp. 279–288.
[8] Brinton: Brit. Med. Review, Jan., 1856.
[9] Busch: Hufeland's Journal, 1836, July, p. 123.
[10] Buzzard: Trans. Path. Soc. of London, Vol. xii, p. 84.
[11] Cadet: Revue Mensuelle des Maladies de l'Enfance, Paris, 1898 xvi, pp. 57–70.
[12] Chvostek: Archives f. Kinderheilkunde, Vol. iii, 1882, p. 267.
[13] Cocks, S. H.: Brooklyn Med. Journ., 1891, v, 551.
[14] Colgan: Medical News, 1892, Oct. 8, p. 408.
[15] Descroizilles: Pathologie et clinique infantile, Paris, 1883.
[16] Dreschfeld, Julius: Albutt's System of Medicine, Vol. iii, 1897, p. 518.
[17] Donne: Cited by Rilliet & Barthez, Handbuch des Kinderkrankheiten, uebers von Hagen 1, Th. S 883, Leipzig, 1855.
[18] Eross: Jahrb. f. Kinderheilkunde, n. f. 19, 1883, p. 331.
[19] Dusser: These de Paris, 1890.
[20] Fenwick: International Clinics, 1897, July, Vol. ii, 7th Series, p. 167.
[21] Fenwick, W. S.: The disorders of digestion in infancy and childhood, 1897, London, W. K. Lewis, Vol. viii, p. 389.
[22] Fenwick: S.: Journ. of Path. and Bact., Vol. 1, June, 1893.
[23] Finney: Br. Med. Jour., 1886, June, p. 1102.
[24] Fox, Wilson: Diseases of the Stomach.
[25] Goodhart: Trans. of the Path. Soc. of London, 1881, Vol. xxxii, p. 79.
[26] Gunz: Jahrb. f. Kinderheilkunde, n. f. 5, 1862, p. 161.
[27] Hayward: Australasia Med. Soc., 1888–9, Sidney, Vol. viii, p. 295.
[28] Hibbard: Bos. Med. & Surg. Jour., 1897, Aug. 19, Vol. cxxxvii, No. 8, p. 177.
[29] Hodges, H. C.: Trans. Obstet. Soc., London, (1889) 1890, Vol. xxxi, pp. 365–369.
[30] Kundrat: Gerhardt's Handbuch der Kinderkrankheiten, 1880, Tübingen, 4 Bd., 2 Abth., pp. 395, 396.
[31] Lebert: Krankheiten des Mangens, Tübingen, 1878.
[32] Lebert: Path. Anat., p. 199.
[33] Leith: International Clinics, Vol. iv, 4th Series, p. 49.
[34] Malinowski: Index Medicus, 1883, Vol. v, p. 575, New York.
[35] Massachusetts General Hospital: E. Med. Records, Vol. 433, p. 166. E. Med. Records, Vol. 577, p. 34. W. Med. Records, Vol. 416, p. 34.
[36] Meminoff, A. Y.: Med. Obstr., Tiflis, 1902–3, xxxix, 461–470.
[37] Northrup: Rotch, Pediatrics, p. 853.
[38] O'Farrell, J. Mcl.: Lancet, London, 1894, Vol. i, p. 1243.
[39] Rehn: Jahrb. f. Kinderheilkunde, n. f. 7, 1873–4, p. 19.
[40] Reimer: Jahrbuch für Kinderheilkunde, 1876, Bd. x, S. 289.
[41] Rillet et Barthez: Revue des Maladies de l'Enfance, Vol. ii, 2d Ed., p. 881.
[42] Rufz: Gaz. Médicale, 1843, p. 673, cited by Rilliet, ub. 1 Th., p. 583.
[43] Riegel, Franz: Diseases of the Stomach, Nothnagel's Practice, Amer. Ed., Saunders, 1903.
[44] Rotch, T. M.: Pediatrics, p. 853. Private communication to writer.
[51] Rokitansky: Oesterreich Med. Jahrb., 1839, Bd. xviii (Schmidts' Jahrb. Bd. 25, p. 40). Communication to von Gunz Jahrbuch der Kinderheilkunde, Bd. 5, p. 161, 1862.
[45] Sokoloff, D. A.: Perforation of Stomach and Diaphragm in a Child of Two Years of Age, Trudi. Obstr. St. Petersburg, Dietsh. irach, 1891, Vol. vi, pp. 28–41.
[46] Troisfontaines: Ann. Soc. Méd. Chir., Liége, xxxv, 238–241, 1896.
[47] Wereimber, A: Fall. von Ulcus. ventriculi simplex, Jahrb. f. Kinderkrank., Leipzig, 1883, n. f. 19, p. 79.
[48] Wertheimer: Jahrb. f. Kinderheilkunde, n. f. 19, 1883. 79.
[49] Welch, William H.: Pepper's System of Medicine, Vol. ii, pp. 480 *et sec.*
[50] Widerhofer: Gerhardt's Handbuch der Kinderkrankheiten, Tübingen, 1880. 4 Bb., 2 Abth., p. 399.

EXAMINATION OF PLEURAL FLUIDS WITH REFERENCE TO THEIR ETIOLOGY AND DIAGNOSTIC VALUE.

BY PERCY MUSGRAVE, M.D., BOSTON.

(Concluded from No. 14, p. 381.)

CASE 59. — C. O. B., forty-seven, m., Canadian, gardener. March 25, 1904. F. H. negative. P. H. unimportant. Habits good. Pres. ill. — Past winter began to have dyspnea on exertion, and swelling of legs and abdomen; severe cough; sputum white. For one week increase in symptoms. Orthopnea at times. Phys. exam. — W. D. and slightly obese. Heart: signs of myocarditis. Lungs: signs of bronchitis and right pleural effusion. Temperature 103, pulse 124, respiration 40. Blood: whites — 6,800. March 26, *chest tapped, fluid:* amount 40 oz., color yellowish red, turbid, some fibrinous flakes, alb. 1%, sp. gr. 1,012; sed.: considerable, count of 500 cells, polynuclears 96.6%, lymphocytes .4%, endothelium and large mononuclears 3%; few red corpuscles. Cultures: no growth on blood serum or blood ager; some digestion of the blood serum. Pig inoculated; autopsied May 31, 1904; negative. Patient transferred to surgical on March 26. Clinical diagnosis: empyema. Myocarditis. Broken compensation. Ascites.

CASE 60.—E. S. (female), two, s., American. March 29, 1904. F. H. good. P. H. negative. Habits: tea and coffee to excess. Pres. ill. — For four days fever, slight cough, rapid respiration, thirsty. Grown rapidly pale. Phys. exam.— W. D. and N.; slightly cyanotic. Heart negative. Lungs: signs of right pleural effusion and consolidation; otherwise negative. Temperature between 102 and 104. Pulse 150 to 170, falling to 138. Respiration 55, falling to 40 after tapping. Blood: whites — 28,400. *March 31, chest tapped, fluid:* amount 8 oz., brownish yellow, turbid, few fibrinous flocculi, alb. 3%, sp. gr. 1,020; sediment: abundant, consisting of broken down leucocytes, chiefly polynuclear; many streptococci seen; no tubercle bacilli found on cover-slip. Cultures: pure streptococcus. Child was transferred to surgeons. Operated on, making an extremely slow recovery. Is still in hospital. Clinical diagnosis: pneumonia.

CASE 61.— J. F. (female), eighteen, s., Italian. March 1, 1904. F. H. and P. H. negative. Habits good. Pres. ill. — For three weeks pain in left chest with increasing shortness of breath, slight cough, no sputum. Phys. exam. — W. D. and N. Face flushed. Heart displaced to right; examination otherwise negative. Temperature 103, pulse 120, respirations 40. Blood: whites — 19,600. *Chest tapped, fluid:* amount 48 oz., greenish brown, turbid, with fibrinous flakes, alb. 2%, sp. gr. 1,022; sediment: considerable amount, consisting of many broken-down necrotic leucocytes, mostly polynuclear; numerous cocci, many in chains without capsule. Cultures: pure streptococcus; no tubercle bacilli found; two slides examined. March 3, transferred to surgical. Operated

upon several times. Very slow convalescence. Patient still in hospital, June 2, 1904. Clinical diagnosis: pleurisy with effusion. Streptococcus.

Case 62.— E. Des R. (female), twenty-five, s., American, housewife. Dec. 28, 1903. F. H. good. P. H. negative. Habits good. Pres. ill.— Three days headache, malaise, chills and fever. Sharp pain in right axilla, rigor twenty-four hours before entrance. Dyspnea, increasing cough, orange-colored expectoration. Phys. exam.— W. D. and N. Labial herpes. Heart negative. Lungs: pneumonia right upper lobe; examination otherwise negative. Temperature ranging between 102 and 105 for four days, then sudden drop to 100½; for two weeks temperature was irregular, between 99 and 102, then normal. Pulse closely followed temperature line, and for four days was between 120 and 140, then for two weeks averaged 110, then between 80 and 90. Respiration curve followed that of the temperature and pulse. Blood: whites — 37,800. Sputum typical of pneumonia. *Jan. 4, signs of fluid in right chest, tapped, fluid:* amount 12 oz., orange colored, sp. gr. 1,015; sed.: polynuclears 44%, lymphocytes 34%, endothelium 8%, large mononuclears 14%; red corpuscles fairly numerous. Diplococci resembling pneumococci found in polynuclears. No cultures made. Not in sterile flask. Patient developed an arthritis which delayed convalescence. Discharged well Feb. 12. Clinical diagnosis: Croupous pneumonia. Pleurisy with effusion. Arthritis. Pneumococcus (?).

Case 63.—S. J. S., thirty-one, m., American, painter. March 20, 1903. F. H. negative. P. H. acute gangrenous appendix with abscess Jan. 17, 1903; operation; otherwise negative. Habits good. Pres. ill. — For two weeks malaise, chilly feelings, sweating, symptoms gradually increasing in severity. Phys. exam. — W. D. and fairly W. N. Pale. Heart negative. Lungs negative. Abdomen, small, discharging sinus at lower end of appendix scar, discharging a little greenish-white pus. Liver not enlarged. Spleen enlarged by percussion, not palpable: otherwise negative. Temperature irregular with evening exacerbations 100½ to 104; pulse averaged 90, respirations 25. Blood: whites — 16,400; no Widal. March 22, tenderness over liver region noted. March 29, transferred to surgical. May 4, signs of right pleural effusion; question of tuberculosis of the pleura and lungs at that time. *May 5, chest tapped, fluid:* amount 4 oz., straw colored, slightly turbid, alb. 3½%, sp. gr. 1,022; sed.: polynuclears 74%, lymphocytes 2%, eosinophiles 1%, endothelium 6%, large mononuclears 17%; few red corpuscles. Cultures: staphylococcus albus. Contamination? May 11, operation: abscess of liver found pointing into pleural cavity but not rupturing. Abscess due to actinomycosis with secondary infection. Oct. 1, discharged relieved. Clinical diagnosis: abscess of liver due to actinomycosis.

Note. — Has died since leaving hospital. No autopsy.

CLASS III.

Case 64. — M. C., fifty-seven, m., Canadian, blacksmith. April 21, 1903. F. H. and P. H. unimportant. Habits good. Symptoms of circulatory disease 3½ years ago. Phys. exam.— Well developed, emaciated, somewhat pale. Heart: signs of mitral insufficiency, palpable arteries, high tension pulse; examination otherwise unimportant except for a left pleural effusion. Extensive edema feet and legs. Temperature approximately normal except for two days when it was 101. Respirations averaged 25. Blood: whites — 11,000. Urine: normal, acid, alb. ⅛%, sp. gr. 1,020; numerous hyaline, fine granular casts, few leucocytes, small round cells and blood corpuscles. *April 23, chest tapped, fluid:* amount 56 oz., straw colored, alkaline, very slight coagulum, alb. 1.2%, sp. gr. 1,012; sed.: many large endothelial cells occurring free, and in plaques; moderate number of lymphocytes, rare polynuclears. Cultures: no growth. Patient improved under treatment; discharged relieved April 9. Clinical diagnosis: arteriosclerosis. Mitral regurgitation. Chronic interstitial nephritis.

Case 65.— J. J. C., forty-eight, m., Maine, bar-tender. April 28, 1903. Previously treated in hospital for aortic insufficiency. Pres. ill. — Symptoms of broken compensation for six weeks. Phys. exam.— Well developed and somewhat emaciated. Heart: aortic insufficiency. Lungs: signs of right pleural effusion. Abdomen: slight ascites, enlargement of the liver and spleen. Edema of legs. Temperature averaged subnormal; pulse averaged 90; respiration 25. Blood: whites — 6,400. *April 28, chest tapped, fluid:* amount 54 oz., pale, serous, straw colored, alkaline, alb. 1.4%, sp. gr. 1,012; sed.: very few elements, few clumps of endothelium and few lymphocytes. Some of free endothelium swollen and evacuolated. Cultures: no growth. Discharged much relieved May 13. Clinical diagnosis: aortic insufficiency. Broken compensation. Enlarged liver.

Case 66.—C. W. H., fifty-three, s., American farmer. July 6, 1903. F. H. good. P. H. unimportant. Habits good. Pres. ill. — Symptoms of cardiac disease for 2½ years. Phys. exam.— W. D. and N. Cyanotic. Heart: signs of mitral regurgitation and broken compensation. Lungs: signs of right pleural effusion. Considerable edema lower extremities. Temperature normal or sub-normal with two transitory rises above 100. Pulse 65 to 85; respirations 25. Blood: whites — 6,400. No sputum. *July 9, chest tapped, fluid:* amount 52 oz., pale straw colored, very slight coagulum, alb. 1.2%, sp. gr. 1,011; sed.: very rare, more or less disintegrated endothelial cells. Cultures: no growth. Patient improved; July 28 discharged relieved. Clinical diagnosis: myocarditis. Mitral regurgitation. Hydrothorax.

Case 67. — F. W. C., thirty-nine, s., American, teamster. April 12, 1904. F. H. negative. P. H. unimportant. Habits: alcohol to excess, up to one year ago. Pres. ill. — One month ago swelling of legs and abdomen coming on insidiously without assignable cause. Dyspnea, no cough, anorexia. Micturates three or four times at night. Phys. exam.— W. D. and poorly nourished; pale. Heart negative. Lungs: pleural effusion both bases, marked on right. Abdomen: ascites. Edema, feet, ankles, thighs and back. Temperature chart unimportant. Blood: whites — 11,400. Urine characteristic of sub-acute glomerulo nephritis. *Right chest tapped, fluid:* amount 40 oz., color bright pink, coagulum very slight, alb. ½%, sp. gr. 1,010; sed.: marked amount principally red blood corpuscles; white elements no more numerous than the amount of blood would call for. Marked number of endothelial plaques. Cultures: no growth. Pig inoculated; autopsied May 21; negative. *April 20, chest tapped again, fluid:* amount 48 oz., pale opalescent, no coagulation, alb. trace, sp. gr. 1,008; sed.: scanty, few elements. Many partly necrotic endothelial cells, some in plaques, marked number of lymphocytes and a few polynuclears; many of cells ragged and broken up; very few red corpuscles. May 24, discharged relieved. Clinical diagnosis: sub-acute glomerulo nephritis.

Case 68. — B. L. C., forty, m., Russian, store-keeper. April 18, 1904. F. H. negative. P. H. negative. Habits: tobacco in excess. Pres. ill. — For ten months increased pain in lower right chest, no other

symptoms; for five weeks pain has been worse and accompanied by dyspnea and anorexia. Phys. exam. — W. D. and N., pale. Heart: slightly enlarged and irregular. Lungs: right pleural effusion; examination otherwise negative. Temperature normal; pulse 110 at entrance, gradually falling in four days, then ranging between 70 and 85; respiration at entrance 30, gradually falling to 20. Blood: whites — 10,400. *April* 19, *chest tapped, fluid:* amount 42 oz., hemorrhagic, no coagulum, sp. gr. 1,035; sed.: large amount, chiefly red corpuscles, white elements and endothelium scanty by comparison; endothelial plaques; lymphocytes 23%, polynuclears 11%, endothelium 65%, large mononuclears 1%. Cultures: no growth. Pig inoculated; autopsied May 21; negative. Patient improved fairly rapidly and April 30 felt well except for occasional pain in right chest. Discharged well. Clinical diagnosis: pleurisy with effusion.

NOTE. — Sp. gr. was either an error of record or was due to blood, probably accidental.

CASE 69. — A. B. (colored), fifty-nine. July 21, 1903. P. H. Severe rheumatism twenty years ago; well until five months ago when he had attacks of dyspnea and stenocardia with increasing dyspnea; got better and was well until three weeks ago, since when he has had cough without sputum with increasing dyspnea. Phys. exam. — Signs of mitral regurgitation. Lungs: signs of left pleural effusion; lungs otherwise negative; physical examination otherwise negative. *Chest tapped July* 22, *fluid:* amount 3 pints, straw colored, very small coagulum, alb. 1.2%, sp. gr. 1,011; sed.: many endothelial cells in large and small clumps; some of the plaques contain as many as 15 or 20 elements; few lymphocytes and rare polynuclears; few red corpuscles. Clinical diagnosis: mitral regurgitation. Hydrothorax.

CLASS IV.

CASE 70. — E. G. (female); thirty-five, s., American, housework. June 18, 1903. F. H. and P. H. negative. Pres. ill. — For three years patient has had lump in the left breast which has suddenly grown larger. Progressive loss of weight. For three weeks increasing dyspnea. Phys. exam. — P. D. and P. N. Marked dyspnea. Heart displaced to right. Lungs: signs of large left pleural effusion. Carcinoma of the breast and metastases in the axillary and supraclavicular glands. *Chest tapped, fluid:* amount 95 oz., serous, slightly hemorrhagic, alb. 3%, sp. gr. 1,022; sed.: considerable number of endothelial cells free and in plaques of two and three; lymphocytes 61.7%, polynuclears 6.3%, endothelium 32%; numerous red corpuscles. Cultures: no growth. Patient died within a few hours. No autopsy was obtained. Clinical diagnosis: cancer of the breast and metastases into the pleura.

CASE 71. — Mrs. X. (private patient of Dr. X.) Patient had had an operation about two years ago with removal of the left breast for carcinoma. About eighteen months later, developed a pleurisy with insidious onset in the left side. *Fluid:* straw colored, considerable coagulum, alb. 1½%, sp. gr. 1,021; sed.: considerable number of endothelial cells free and in clumps, many with double nuclei and some with nuclear figures; lymphocytes 75%, polynuclears 5%, endothelium 20%. Cultures: no growth. Pig inoculated; autopsy negative. Clinical diagnosis: pleurisy with effusion, probably malignant.

CASE 72. — Mrs. X. (private patient of Dr. X.). Previous operation within two years for cancer of breast. *Fluid:* dark straw colored, alb. 2½%, sp. gr. 1,019; sed.: many lymphocytes and few polynuclears, some very large endothelial cells, some showing two nuclei, and some evacuolated; these cells occur in plaques of three and four elements and more. Case died. Autopsy showed pleura studded with cancerous nodules. Pig inoculated; autopsy negative. Clinical diagnosis: recurrent cancer of the breast with metastases into the pleura. Autopsy showed diagnosis correct.

As a result of the study of this series of cases I think we are justified in coming to the conclusion that routine and systematic examination of pleural fluids will aid us greatly in diagnosis and in determining the etiology of pleurisy.

Of the methods of which I have spoken cyto-diagnosis is the only one which can easily be employed clinically for the reason that animal inoculation, inoscopy and culture methods can only be employed in the laboratory.

Cyto-diagnosis is not accurate in every case any more than any other clinical method, but I think I am justified in saying that it is sufficiently accurate, especially when taken in conjunction with the history and bed-side examination, and the physical and chemical properties of the fluid itself, to justify its use as a routine procedure.

As we have seen in some cases it has not only been of more than probable diagnostic value, but has given us positive and signal results.

Routine examination of pleural fluids will not only enable us to study the question of pleurisy with effusion with reference to etiology and diagnosis, but will establish a basis upon which accurate prognostic statistics can subsequently be based.

In closing I wish to thank the Visiting, Outpatient and House Staff of the Massachusetts General Hospital for their kindness in allowing me the use of these cases, and for furnishing the material upon which this paper is largely based. My especial thanks are due Dr. J. H. Wright and Dr. Oscar Richardson of the Massachusetts Hospital for many favors and valuable suggestions rendered. Additional thanks are due to Mr. Louis S. Brown for photographs and lantern slides.

DISCUSSION.

Dr. F. A. LOCKE of Boston: My experience with this method has been so limited that I have very little to add to this very complete paper. In several cases in my wards I have had an opportunity to observe the accuracy with which a diagnosis has been made by Dr. Musgrave. Of even more interest to me than its aid in diagnosis is the light which it has thrown on the question of the etiology of a large class of cases of so-called "idiopathic pleurisy." In over 50% of these, Dr. Musgrave has been able by this method to demonstrate the presence of tubercle bacilli. As the reader has said, this laboratory method, like all others, is of most value when considered with the clinical picture, for in some instances, if taken alone, its significance may be misleading. Dr. Musgrave deserves great credit for this investigation, for it is, so far as I am aware, the most thorough and exhaustive yet reported.

Dr. F. W. GAY of Malden: Many of us hesitate about accepting some of the conclusions and discoveries which we see reported in the French medical journals. There is a flavor of absinthe about some of them; about others there is a suggestion of "the celebrated French case,"

PLATE I.

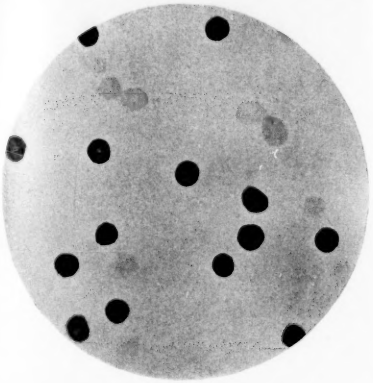


FIG. 1.—Lymphocytosis. Case of Primary Tuberculous Pleurisy. 750 diameters.

FIG. 2.—Necrotic cells and detritus. Case of Secondary Tuberculous Pleurisy. Hydropneumothorax. 750 diameters.

PLATE II.

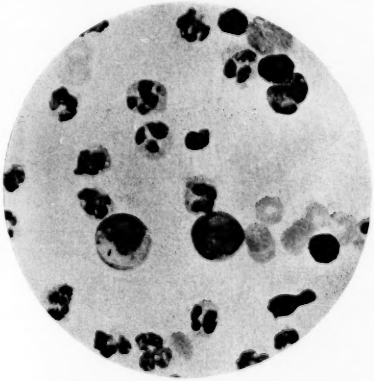


FIG. 1.—Polynuclear leucocytes and large mononuclears. Case of Traumatic Acute Infectious Pleurisy. 750 diameters.

FIG. 2.—Large phagocytic endothelial cells and polynuclear leucocytes. Case of Acute Infectious Pleurisy. 750 diameters.

PLATE III.

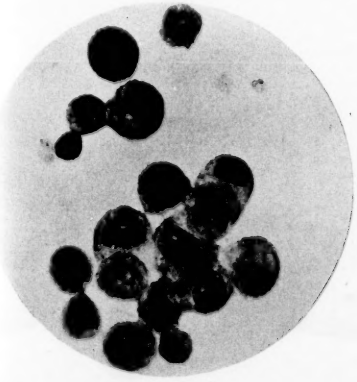


FIG. 1.—Endothelial plaques and cells. Case of Hydrothorax due to cardiac disease. 750 diameters.

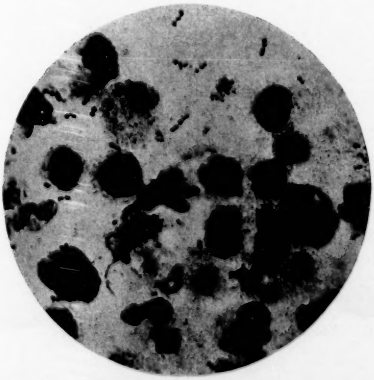


FIG. 2.—Necrotic cells and detritus with streptococci. Case of acute Streptococcus Pleurisy, calling for operation. 1000 diameters.

"the famous French discovery"; so in the case of cyto-diagnosis, for which such extravagant claims were made at first, most of us have waited for the verification of the original work of Widal and Ravant by other observers, before attaching much importance to it, as an aid to diagnosis. Now that Dr. Musgrave in his valuable paper has clearly shown its value, I think we shall all recognize cyto-diagnosis as of importance in the routine examinations. My own experience with cyto-diagnosis is limited to a series of forty cases of pleuritic fluids, which I studied two years ago, and to some thirty cases I have seen since then. I am free to confess that my results have not been so encouraging as those of Dr. Musgrave. My chief difficulty — and one which all observers have encountered — was in distinguishing the mononuclear cells. In some cases, it was very easy to say that a majority of the cells were the endothelial flakes. In others, I felt certain that a large percentage of the cells were small lymphocytes; but in the majority of the cases of my series, I confess I could not swear that the cells were anything more than mononuclear or polynuclear. In the first few cases I examined, I fear the fact that I knew the clinical history of the case helped me in making a distinction between lymphocyte and endothelial cell. As Wolff well says, "It is much easier to talk about small lymphocytes than it is to be sure of their accurate identification." Competent observers have reported cases of tubercular pleurisy in which most of the cells were polynuclear; others, cases where the majority of the cells were endothelial flakes. In the light of these facts and my own limited experience, I do not believe that we are as yet justified in concluding from the examination of the cells in the fluid alone, whether a pleurisy is tubercular or not. Furthermore, I consider that the value of cyto-diagnosis lies entirely in its association with other clinical facts.

Dr. Musgrave: I cannot agree with Dr. Gay that it is difficult to distinguish between the small lymphocyte and the endothelial cells. In the great majority of cases I have known nothing of the clinical histories until I have given my opinion as based on the examination of the fluid.

Medical Progress.

RECENT PROGRESS IN GYNECOLOGY.

BY W. L. BURRAGE, M.D.

(Continued from No. 14, p. 384.)

MALIGNANT DEGENERATION OF FIBROIDS.

In an article on the treatment of fibroid tumors of the uterus,[13] Charles P. Noble presents an analysis of the results obtained in 988 operations for fibroids by Martin, Frederick, Cullingworth, McDonald and himself. Chorio-epithelioma was found in 2, sarcoma in 14, carcinoma of the cervix uteri in 10, and carcinoma of the corpus uteri in 25; in other words, 5% of the 988 cases were found to have malignant degeneration.

Other complications found were necrosis of the tumor in 6.1% and cystic degeneration in 3.4%. He goes on to say that "These facts are incontrovertible; and when added to the probability of the continued growth of the tumor in any special instance and to the probability of various complications arising outside of the tumor and of the uterus, it seems to me clear that any one having an open mind must be convinced that the conditions surrounding any particular instance of fibroid tumor of the uterus must be exceptional, for it to be less dangerous for a woman to retain her tumor than to have it removed by a competent gynecologist."

[It is not altogether easy to agree with Noble when he says further: "The evidence which is now available proves conclusively that over one third of the women having fibroid tumors will die unless the tumors are removed," since, even if one third of the women who came to operation might have died had they not had operation, and the figures given by no means prove the proposition, no account is taken of the thousands of women having fibroids, who not only have not come to operation, but have not even consulted a physician.]

[13] Jour. Amer. Med. Asso., May 21, 1904.

AVOIDANCE OF POSTOPERATIVE CYSTITIS.

K. Baisch[14] made the discovery that the death of a certain patient fourteen months after ablation of a uterine cancer — the general health being good during the interval — was due to a progressive postoperative cystitis. He believes that it is more than probable that many deaths which have been attributed to recurrence of the cancer or to an intercurrent affection, were in reality due to an unsuspected postoperative cystitis or its sequels. There has not been a single instance of postoperative cystitis in the 31 cases operated on by the Wertheim technic since he instituted systematic rinsing out of the bladder every time the catheter is used. Only one of the 31 was able to urinate spontaneously from the first, and 5 died in the course of the week with no manifestations of cystitis. Of the remaining 25, one had suffered from severe nephritis before the intervention, and it proved impossible to avert the cystitis in her case. In two, the last drops of urine were a trifle cloudy and the colon bacillus was found, but vanished in a few days with no further signs of trouble. The others — some of whom required catheterization for eighteen days before spontaneous urination was restored — all escaped any bladder trouble. Even after spontaneous urination is restored, it is at first imperfect, and the bladder is not completely emptied, thus favoring infection. Hence it follows that these irrigations must be faithfully kept up until the bladder function is completely restored to normal, and the last drops of urine are spontaneously evacuated. Wertheim himself now injects a solution of protargol or boric acid as a prophylactic measure. By this means all the germs introduced by the catheter are killed at once before they have time or opportunity to do any damage.

INTESTINAL OBSTRUCTION WITH DISEASES OF WOMEN.

Zeidler[15] found that in 64 cases of acute intestinal obstruction, 16 (25%) showed a dependence

[14] Zentralblatt für Gynaekologie, 1904, No. 12, p. 380; Jour. Amer. Med. Asso., July, 1904.

[15] Roussky Vratch, Jan. 31, 1904; N. Y. Med. Jour., vol. lxxix, p. 803, 1904.

upon pathological changes in the female generative organs. The general mortality in the 64 cases of acute obstruction which came to the operating table was 51.56%. In the 16 cases, however, in which the obstruction was due to diseases of the female genitals, the mortality was only 31.25%. Zeidler attributes this difference to the fact that in this class of cases the diagnosis of obstruction is made earlier and more accurately. The most common form of obstruction following or accompanying diseases of women is that due to adhesions resulting from laparotomy. Such adhesions are almost constantly found after all operations in the pelvic cavity, and this complication is much more common in gynecological operations than in procedures involving the stomach, intestines, and other organs.

Another group of cases of acute obstruction occurs as the result of peritonitis from diseases of the female generative organs. Out of 8 cases, 2 were due to puerperal peritonitis and 6 to pelvic peritonitis due to other causes. In 3 cases, pelvic exudates filling the pelvis were the cause of the obstruction. In these three cases the exudate was so dense that it was taken at first for a tumor growing from the bones of the pelvis. In four cases inoperable tumors of the female pelvic organs were the cause of the obstruction.

INTERNAL SECRETION OF UTERUS.

A. Schücking [16] believes that he has established the existence of an internal secretion in the gravid uterus, a metrotoxin, which has some influence on ovulation. His experiments were made on rabbits, which were injected with an emulsion of the tissue elements of gravid uteri. None of the rabbits conceived, although males cohabited freely with them. The emulsion seemed to have an inhibiting influence on the ovaries, and it also apparently induced hyperemia in the uterus. He supplemented these researches by injecting this emulsion of human or rabbit uteri into guinea pigs and it displayed marked cytolytic property in the cornua of the uterus. The serum of the animals thus treated acquired considerable hemolytic power for human red corpuscles, confirming its nature as a specific cytotoxin. He suggests that a serum of this kind might be used to advantage in inoperable cancers of the uterus and for post-operative treatment. The fact of an internal secretion may explain why women recover more rapidly after genital hemorrhages than from losses of blood otherwise. It may further afford the key to the extraordinary disturbances in the general health that is liable to follow even a slight interference with the circulation in a misplaced uterus. It further confirms the assumption in regard to the independence of the uterus from the ovaries.

TUBERCULOSIS OF OVARIAN TUMORS.

This combination of lesions is in itself a rarity, but thirteen cases, including that of F. Prüsmann,[17] having been reported. The writer's case appears to possess the unusual feature of being one in which the tuberculous process was primary in the tumor. Of the 13 cases on record, 11 were glandular cystomata, and 2 dermoid cysts. The tumor described by Prüsmann was removed by laparotomy from a sterile woman of thirty-four. It was a multilocular cyst of the right ovary, whose inner surface was composed of granulation tissue, devoid of blood vessels, densely infiltrated with round cells, necrotic internally, and containing giant cells and tubercle bacilli. In the broad ligament there were areas of round-cell infiltration in the lymph spaces near the tumor, and in these areas were giant cells. This finding would point to a primary infection from the vagina by way of the lymphatics. Physical examination failed to show signs of tuberculosis in the lungs or elsewhere, but as the patient recovered, the existence of a primary focus other than in the tumor could not be excluded.

Cornet and Jani have shown what a prominent rôle coitus plays in the transmission of tuberculosis, since the tubercle bacilli in the semen are especially virulent.

DANGERS OF INTRA-UTERINE INJECTIONS.

P. Zweifel [18] writes that it seemed possible, by avoiding entrance of air, infection and absorption of drugs, to render intra-uterine infections absolutely harmless, but Zweifel reports a case of convulsions simulating an eclamptic attack, which occurred during an extremely cautious intra-uterine injection of boiled water. Particularly remarkable features of the case were the coughing up of blood and hemoglobinuria and the rapid rise in temperature, which less than two hours after the injection was 104° F., and by three and a half hours, 106° F., subsiding to normal the next morning. The injection had been made as a last resort to induce artificial delivery, after failure of bougies and the metreurynter, the indications being heart disease, with edema of legs and rales heard over the lower lobe of the left lung. The fetus was expelled the day after the injection, which had been made according to Künne's technic, and recovery proceeded normally. Zweifel explains the convulsions as the result of the dissolving of blood corpuscles by the water flowing into the uterus, entailing coagulation, then infarct in the lung, and finally hemoglobinuria. The symptoms resembled those observed when water is injected into the blood. All the substances which dissolve blood corpuscles are liable, when injected into the blood, to induce coagulation, hemoglobinuria and general convulsions. He draws the inference that boiled physiologic salt solution should be used for intra-uterine injections instead of plain water. The danger is much less after delivery, as the injected fluid is not taken up so readily by the blood vessels. Tests with stains have shown that fluids

[16] Zentralblatt für Gynaekologie, No. 13, 1904; abstracted in Jour. Amer. Med. Assoc., July 16, 1904.

[17] Archiv. für Gyn., Bd. 68, H. 3; Amer. Jour. Obstets., vol. xlix, No. 3, 1904.

[18] Deutsche Medicinische Wochenschrift, xxx, No. 17; abstract, Jour. Amer. Med. Asso., May 21, 1904.

injected into the uterus are almost sure to pass through the tubes, which explains many of the mishaps after gynecologic injections. For this reason the amount of fluid used must not surpass one or two drops, unless the cervix is well dilated and a stiff tube used. No intra-uterine injection should be attempted when there is any inflammation in the uterus or vicinity, as even the most harmless substances and most approved technics are liable to prove fatally dangerous. Penciling is much safer.

TO DIMINISH THE PREVALENCE OF UTERINE CANCER.

G. Winter [19] gives the results of his many years' struggle to diminish the frequency of uterine cancer in Eastern Prussia. He believes that three factors are essentially to blame for the prevalence of the disease. The first is the lack of knowledge among practicing physicians, which he has combated by sending throughout the territory brochures dealing with the symptomatology and diagnosis of cancer of the uterus. The second is the conscienceless attitude of midwives, to whom he has addressed a leaflet calling attention to the main features of the disease, and urging them to have their patients consult physicians if any suspicious symptoms arise. The third factor is the attitude of women themselves, which he has attempted to overcome by publishing articles of a popular and not alarming character in daily papers. Statistics are given, showing that the operability of cases of uterine cancer presenting themselves in the clinics and to the specialists of East Prussia has risen from 62% in 1902 to 74% in 1903, and also that a larger number of patients came under observation in 1903 in the earlier stages of the disease, than in the period from 1898 to 1902. None of Winter's cases had been treated by quacks, but he considers that nevertheless quackery is responsible for much harm, in that the confidence imposed in quacks often leads to fatal postponement in consulting the physician.

SUPERHEATED AIR IN TREATMENT OF GYNECOLOGIC AFFECTIONS.

J. Salom [20] mentions that this method of treatment has been in vogue at Chrobak's clinic for two years. An apparatus is used of the Reitler type, heated by gas or an alcohol flame, the box made of wire netting and sheets of asbestos, covered with felt. An opening into the box containing calcium chlorid allows the moisture to be absorbed by the chlorid, thus promoting transpiration. The temperature is raised as high as can be borne by the patient, from 90 to 135° C., keeping it at a constant figure if possible, the duration of the application from half an hour to an hour. Fifty-seven patients were thus treated, all but 3 being between eighteen and forty. The number of applications ranged from 4 to 77, the average twenty-three. The relief of the pain is one of the most striking effects of the treatment; the patients are improved subjectively first, and the objective improvement — as resolution and absorption progress — soon follows. The greatest benefit was derived in the cases of parametritis, Nine of the 23 patients in this class were cured. and 12 essentially improved. Six patients with perimetritis were much improved, and 2 patients with pelveo-peritonitis with exudation were cured with an average of 26 applications. One of 2 patients with a postoperative fistula was also cured, and all but 5 of 22 cases of tumor in the adnexa were subjectively cured or much improved, but objectively 13 were unimproved. The inaccessibility of the internal genitalia does not allow us to hope too much from this treatment, but even with this restriction, it frequently accomplishes results unattainable by any other method.

REMOTE RESULTS OF EXTENSIVE OPERATION FOR UTERINE CANCER.

E. Wertheim [21] gives the results of his six years' experience with the radical operation for cancer of the uterus that bears his name. He operates entirely by the abdominal route and removes the uterus with the adnexa, parametric tissues and all the glands that can be found. Occasionally, cases of incipient cancer of the cervix are treated by vaginal hysterectomy, but these cases are not considered.

Eighty-eight cases are reported. Out of 14, representing an operability of 29.2%, 9 are free from recurrence after four years; out of 31 cases, representing an operability of 45%, 19 are free from recurrence after three years; and out of 43 cases, representing an operability of 51%, 26 are free from recurrence after two years.

Recurrence was noted in less than a third of the cases in which the extirpated glands showed no trace of cancer upon microscopical examination. In the cases of recurrence, the new growth always originated in the iliac glands and never in the inguinal glands.

Although it is impossible to remove all the glands, Wertheim considers that his improved results justify him in continuing with the use of the ultra radical operation.

[19] Zentralblatt für Gynaekologie, No. 14, p. 441, 1904.
[20] Wiener klinische Wochenschrift, No. 23, 1904; abstracted in Jour. Amer. Med. Asso., July 23, 1904.
[21] Wiener klinische Wochenschrift, No. 28, vol. xvii, 1904.

Reports of Societies.

AMERICAN MEDICAL ASSOCIATION. SURGICAL SECTION.

(Continued from No. 14, p. 387.)

FIRST DAY — (Continued.)

TWINE IN LIEU OF THE ELASTIC LIGATURE FOR PERFORMING GASTRO-ENTEROSTOMY.

Dr. J. W. DRAPER MAURY, New York City, detailed the history of work done in an experimental line during the past winter at the Surgical Laboratory of Columbia University. He described the twine triangular stitch in place of the square, being a modification of McGraw's method, and depending on a somewhat different principle for its efficacy. He showed the advantage

of the use of twine over elastic, the degeneration of the latter from contact with air being well known. The life of an elastic ligature does not exceed six weeks, or at least two months under the most favorable conditions. Strong white commercial twine, which will not break with the hands, can be easily obtained anywhere, and can be introduced with less difficulty than the elastic. Any large needle will carry the twine, while varieties of complicated needles have been made to facilitate the use of the elastic ligature. Three months ago, Dr. Maury said, twine was substituted for elastic ligature, and the triangular stitch used instead of the quadrangular, since which time thirteen dogs had been operated upon, the stomachs and intestines of all of which had been brought to this meeting and placed on exhibition.

It had been shown that this stitch invariably produced a large and commodious opening. He said they operated upon a pig, and a very perfect specimen of entero-enterostomy was obtained, it having been removed after the pig had lived for six months. This specimen was also brought to the meeting for exhibition. As the gut of this animal resembles more closely than dogs that of man, more satisfactory experimental results can be obtained. The introduction of twine, he said, could be accomplished in less than a minute and a half, but like every other stitch, it required some study and practice. The ease with which the stitch can be inserted was demonstrated by introducing it between two hats. Dr. Maury described the method of inserting the twine in triangular form, which was illustrated by a chart which Dr. Weir had had made for the purpose. The Lembert stitches, he said, were certainly necessary in the technique, although it did not appear to matter whether they were interrupted or continuous, but that the former was usually employed. Dr. Maury said that while it might reasonably be felt by some that not enough work had as yet been done in an experimental line to demonstrate positively the efficacy of the twine ligature, yet if anything could be judged from a small but consecutive series of successful experiments, the twine is at least the equal of elastic.

REMARKS ON THE DISADVANTAGES OF THE MURPHY BUTTON.

Dr. ROBERT F. WEIR, New York, opened this paper by stating that he did not propose to decry the merits of the well-known Murphy button, for it was conceded by every one to be an admirable mechanical device, but since its introduction an enormous experience as to its value had been acquired, which it was well from time to time to take stock of. He referred to the great saving of time by the use of the button, and particularly if one avoided using any sutures of safety to hold together the peritoneal surfaces peripheral to the button, which, however, were from time to time found to be an additional necessity. He referred to the various mechanical devices in use previous to the introduction of this button and commented on their various merits, but admitted that the button was an improvement over all of them. He then detailed some of the mishaps which occur from time to time in the use of the button, among others the occasional escape of the button into the stomach, the failure of the button to come away, the imperfections in its manufacture and the various materials of which it was made, and explained certain methods of his own for overcoming these drawbacks. He alluded to the objection that both surgeon and patient felt at leaving within the body a metallic device with the imperfections that were inseparable from any mechanical contrivance, and said it was not to be wondered at that many surgeons of distinction both here and abroad should have recently reverted to the previously cast-off simple method of incision and suture. He spoke unfavorably of the oblong button which had lately been applied to a gastro-enterostomy by Murphy and Blake as he believed there was a greater risk of lodgment in the stomach and an increased amount and variety of mechanical contrivance. He was more hopeful of the elastic ligature suggested by McGraw of Detroit.

EXCISION OF THE ULCER-BEARING AREA IN GASTRIC ULCER.

Dr. WILLIAM L. RODMAN, Philadelphia, considered that this was the most rational method of the treatment of this condition, other methods being not infrequently very disappointing. He admitted that excision of the ulcer alone might not cure, as in at least 20% of all cases the ulcers were multiple. He drew attention to the fact that gastro-enterostomy at times utterly failed to control hemorrhage and prevent perforation and always failed to remove cicatrices which might degenerate into carcinomata. He did not believe that the mortality following excision of the ulcer-bearing area would probably be any greater than the medical treatment of gastric ulcer or the less radical surgical procedures already established. In addition he claimed that this method left the stomach in better condition for future usefulness.

Dr. A. J. OCHSNER, Chicago, said he would limit his discussion entirely to the McGraw ligature. His experience covered 86 cases, 68 of which were operated upon in the hospital, while the balance occurred in various places where it was not possible to so closely observe them. Of the 68 cases done at the hospital 19 were for carcinoma of the stomach in which he did a simple gastro-enterostomy for the relief of the obstruction of the pylorus. Of these cases three died, but he believed such would have been their termination even had he not used the McGraw ligature. In 12 cases of benign stricture of the pylorus due to healed ulcers, all recovered. Thirty-three cases were operated upon for acute ulcer of the stomach of which 32 recovered, 1 dying at the end of the third week from probable thrombosis of the pulmonary. He also reported one successful entero-enterostomy for a carcinomatous obstruction of the splenic flexure of the stomach with recovery, 2 entero-enterostomies of which 1 died, probably from depression, and 1 operation for carcinoma involving the common duct. Of intestinal cases he reported 67 with 5 deaths, of which 3 were due to carcinoma, 1 to a thrombus and 1 to a very greatly depressed condition of the patient. He detailed a case operated upon about two weeks ago in which he did a gastro-enterostomy and excised about two thirds of the stomach. In his opinion it was a peculiar point about gastro-enterostomy when done with the McGraw ligature that the patients show practically no shock which might be supposed to be due to the fact that it is possible to do the operation with great rapidity, but he believed the shock in most cases to be due to manipulation.

Dr. WILLIAM J. MAYO, Rochester, believed that the Murphy button was of great service in certain cases. He preferred the posterior operation to the anterior one as in the posterior operation the mucous membrane was better able to protect itself. He admitted that all he knew about gastro-intestinal surgery he had learned from the Murphy button, and regretted very much having to partially give up its use. He looked upon Ochsner's method as a correct one. He referred to Dr. Rodman's operation as being the ideal one but one that could not be carried out in all cases.

Personally he had performed it seven times with recovery in every case.

Dr. JOHN B. MURPHY, Chicago, agreed with Dr. Weir as to the drawbacks to the button, and commented on the quality of the material used by many people in its manufacture. He laid great stress upon the bad results following excessive manipulation and dwelt on the advantages of the posterior operation. Dr. Rodman's paper impressed him very favorably, largely because it avoided any secondary opening. He did not believe, however, that the ideal operation for these conditions had yet been found and expressed the hope that some one would soon discover it.

Dr. ROBERT H. M. DAWBARN, New York, in referring to Dr. Weir's objection to the use of the special forceps advised by Dr. Murphy, explained a method by which he was enabled to make two corks answer every purpose and obviate the necessity of the use of the forceps.

Dr. L. L. MCARTHUR, Chicago, in commenting on the work of Dr. Maury spoke of having been working on the same line himself and reported that most of his attempts had resulted in failure. He exhibited some specimens illustrating his method, although unsuccessful.

Dr. A. PALMER DUDLEY, New York, referred to a case of cancer of the uterus where he attempted to do a hysterectomy in which the small intestine was so friable that it broke into two pieces during the breaking up of adhesions. He inserted a Murphy button and after waiting nineteen days he became somewhat anxious about it. The patient developed a fecal fistula and an examination of this lesion demonstrated the presence of the button so that he felt he held the record for removing a Murphy button through the same incision in which it had been inserted.

Dr. FLOYD W. MCRAE, Atlanta, spoke favorably of the McGraw ligature and argued that the use of rubber was just as good as twine and was more readily sterilized. Another advantage of rubber over twine was that it began its action quicker so that the feeding of the patient could be begun earlier. He claimed that one great advantage in the use of the McGraw ligature was the adding of the McClain needle, all tearing and pulling being entirely obviated. He gave the details of the case operated upon some years ago in which he did a gastro-enterostomy and found the abdomen filled with adhesions. Two years later he was obliged to open the abdomen again for intestinal obstruction which seemed to be high up, and he suspected that the McGraw operation had been a failure which would necessitate making a new opening in the stomach. Upon opening the abdomen he found that the original anastomosis admitted two fingers of his hand readily.

Dr. MAURY in closing gave the details of some experiments with the elastic ligature on six dogs which were killed at the end of thirty-six hours after having developed symptoms of tetany. In referring to Dr. Lloyd's comments as to the time of cutting through of the twine, which he claimed was about three and a half days, he said it was very evident that the cutting process began some time prior to that. He felt that twine could be as readily sterilized as elastic and in addition it was more easy to get and did not deteriorate with age.

Dr. WEIR in closing stated that he had called attention to all the drawbacks he had observed to the Murphy button, some of which had been made by the instrument-makers endorsed by Dr. Murphy himself. He alluded to Dr. Rodman's suggestion as being a scientific one and worthy to be considered. As to Dr. Mayo's inference that the procedure was one to be used where a gastro-enterostomy or some other procedure had failed he stated that he used it in conditions which only occur in about 6% of all cases.

Dr. RODMAN closed the discussion by stating that he did not advise his operation in simple cases, but only in those where it seemed probable that a gastro-enterostomy would not prove successful, as, for example, where there were multiple ulcers some of which were probably on the point of ulceration. He called attention to the fact that it was not always possible at the time of operation to state whether or not an ulcer was benign or malignant, but he thought it was fair to assume that there was at least a fair probability of the presence of malignancy in men about fifty. As to mortality he did not feel that it ought to be greater than 10 or 15%, but he admitted it would probably always be followed by a somewhat heavier mortality than gastro-enterostomy, which is about 5 or 6%. It seemed to him that the operation surely had a place in surgery.

RUPTURE OF MESENTERIC GLANDS DURING TYPHOID FEVER, SIMULATING INTESTINAL PERFORATION: REPORT OF A CASE WITH OPERATION AND RECOVERY.

Dr. ROBERT G. LE CONTE, Philadelphia, called attention to the fact that the profession had long recognized that among the various lesions which may have produced a peritonitis in the course of typhoid fever, rupture of the mesenteric glands is one. It was judged that this occurrence was rare as no references were given in textbooks to such a case, and a search through the recent literature revealed but one recorded case. The anatomy of the mesenteric glands and their situation was described, and particular attention was called to the ileo-colic group as the regional glands of the lower segment of the ileum, and therefore the ones most likely to be enlarged in the course of typhoid fever. In discussing the pathology of the glandular enlargement it was shown that this was due to an active proliferation of the endothelial cells lining the lymph sinuses; that these cells invaded the coats of the smaller blood vessels producing thrombosis and minute necroses of the gland; such necrosis almost invariably ends in resolution, even if the typhoid bacillus is present in the gland in large numbers and pure culture. The post-mortem examinations at the Pennsylvania Hospital showed that in many cases the glands of the ileo-colic group were enlarged to the size of walnuts and usually presented microscopic necrosis, and yet in none of these cases had the capsule shown any sign or tendency towards breaking down. It was therefore concluded that some other factor must have been present for perforation of the gland in addition to thrombosis of the minute vessels and the presence of the typhoid bacillus. It was suggested that this factor may have been an extension of the inflammation outside of the gland producing a thrombosis of the larger vessels, and in this way a necrosis of the capsule of the gland; or, that staphylococci or streptococci gaining entrance through the eroded mucous membrane of the bowel obtained a firm foothold in the gland, liquefying its tissue, with ultimate perforation of the capsule.

A case was then reported of a Hungarian, aged twenty-two, in which the mesenteric glands ruptured on the estimated thirty-fifth day of the disease, with the production of a local peritonitis. Operation was performed, the broken down gland curetted, its cavity packed with gauze, and this area of the mesentery walled off from the general peritoneal cavity by gauze. An uneventful recovery followed. Abstracts of two cases of a similar character were briefly recorded, both of which were operated upon with death ensuing.

Conclusions: (1) That swelling of the mesenteric

glands was a constant lesion of typhoid fever. (2) That such enlargement was due principally to a proliferation of the endothelial cells lining the lymph sinuses. (3) That these cells by penetrating the walls of the capillaries and smaller veins produced thrombosis, with resulting minute necroses. (4) That such necrosis ended in resolution. (5) That perforation of the capsule of the gland was dependent upon some causes other than the presence of the typhoid bacillus and thrombosis of the smaller vessels. (6) That perforation was probably due either to the presence of the staphylo- or streptococcus in the gland, or to thrombosis of the larger vessels outside of the gland.

Dr. L. J. HAMMOND, Philadelphia, said there were so few recorded cases it was difficult to add very much to what the author had said, but from the five cases in literature sufficiently analogous to Dr. Le Conte's it was possible to at least draw some conclusion as to the mode of invasion of the infection. In two of the reported cases there were sufficient extensive complications to completely overshadow the intestines as the probable focus of infection, and besides, the intestinal ulcers found at autopsy were not sufficiently extensive to justify the probability of invasion from this source. He referred to twenty-nine cases where a slight perforation of the peritoneal coat had taken place into the peritoneal cavity, and the glands themselves were distended with pus so thoroughly that it was natural to assume the condition would have been free in the cavity. In most of the cases the presence of a lump was not noticeable earlier than the thirtieth day, and in one case it did not appear until four and a half months. In all probability Mallory's theory would be found to be the correct one, which was that the infection took place from endothelial cell proliferation.

Dr. L. L. MCARTHUR, Chicago, reported one case similar to that of the author in which there were some symptoms of localized peritonitis during an attack of typhoid fever.

Dr. D. N. EISENDRATH, Chicago, reported a case of typhoid fever operated upon by Dr. E. W. Andrews of Chicago in which absolutely nothing was found. In thirty hours the patient was dead, and while autopsy proved the existence of typhoid and failed to show any perforation it was found that a large mesenteric gland had ruptured similar to that reported by Dr. Le Conte. In addition to the localized peritonitis from this cause there was present an enormously dilated stomach.

Dr. THOMAS, Scranton, reported a case of typhoid which in the sixth week developed a pain on the left side. Examination showed some thickening, and under cocaine six ounces of pus was evacuated. In a few days pain developed on the opposite side, from which eight ounces of pus was evacuated and the patient made a good recovery.

EXCISION OF PART OF THE ILEUM AND ALL OF THE CECUM AND ASCENDING COLON; ILEUM AND TRANSVERSE COLON UNITED BY NEW METHOD.

Dr. J. SHELTON HORSLEY, Richmond, Va., alluded to the many ingenious methods in use for the uniting of the divided ends of the intestinal tract, and said it seemed to him that the trend of surgical opinion was in the direction of suture rather than mechanical appliances, which was due to the fact that an operative procedure requiring for its performance a special apparatus was thereby handicapped. He referred to a paper already published in which he gave the results of experimental work in intestinal suturing, the result being the method he now employs, which he believed simplified the technical difficulties and obviated stricture in many cases. He detailed his method at considerable length and freely illustrated the various points. He also reported in full a case in which his method had been employed, but death resulted four days after the operation. He described at length the results of the post-mortem examination and also the details of the microscopical examination of the specimen, from which the diagnosis was made of syphilitic gumma of the intestines.

Dr. OLIVER C. SMITH, Hartford, urged that there should be more reporting of unsuccessful cases since much might to be learned from such reports. He expressed the fear that too many men had an idea they were able to operate for appendicitis just as everybody used to think they were proficient in obstetrics, the result being that every now and again a novice runs up against a carcinoma or an intussusception and does not know what to do. An important question which often has to be decided is, Should a mechanical device be employed which is to be removed or should one be used which is to be allowed to stay? and he did not believe every man who thought he could operate for appendicitis was competent to make this choice.

Dr. A. J. OCHSNER, Chicago, referred to the rarity with which surgeons had an opportunity of excising the cecum, ascending colon and ileum which he believed was the reason why the subject had never been thoroughly discussed before the Section. He urged the necessity of avoiding unnecessary manipulation, and commented on the fact of the great mortality in cases where much manipulation was necessary. He described in detail how he believed the operation referred to in the paper should be done, and alluded to the question of large and small intestine, which terms he said should have been dropped years ago. He advised the use of the Murphy button in such cases as that reported, with the use of a few stitches. He reminded the members of the Section of the great care needed to see that serous surface was brought opposite to serous surface and peritoneum opposite to peritoneum, so that the operation if properly performed would not take more than thirty minutes.

Dr. F. GREGORY CONNELL, Colorado, expressed himself as very glad that Dr. Horsley used the through and through intestinal suture, and stated that the one great element to be remembered was the necessity of securing it. He referred to the teaching in years gone by that the suture must not cut through the submucosa, and admitted that a few years ago Dr. Horsley's method would have been looked upon as dangerous. He considered the point of infection a more or less theoretical one.

Dr. HORSLEY, in closing, commented on Dr. Ochsner's reference to the necessity of avoiding any unnecessary manipulation and explained why it became necessary to manipulate so much in this case, and why the operation took two hours to perform. He claimed he could have done the operation under ordinary circumstances in eight minutes, and drew attention to the fact that if the colon is closed there is but one wound, whereas if the Murphy button was used there would be two. He closed by recommending a direct suture with an ordinary needle and thread, as he believed it to be the method of choice and was something that was always at hand.

SECOND DAY. — WEDNESDAY, JUNE 8, AFTERNOON SESSION.

A CASE OF RETRO-PERITONEAL FIBRO-LIPOMA.

Dr. GEORGE BEN JOHNSTON, Richmond, Va., reported this case very fully and reviewed the literature on the subject at great length. He regretted that these growths were so confused and were regarded in the same category with retro-peritoneal sarcoma as so

few of the cases in literature have shown any tendency to undergo sarcomatous degeneration. In speaking of the etiology he admitted but little was known except that the condition was about 30% more common in women than in men, and that the large majority occurred between the ages of thirty and sixty. As to the symptoms he noted that their absence was particularly striking, and thought it remarkable such an enormous growth could take place in the immediate neighborhood of so many important organs and yet remain unnoticed by the patient. The first symptoms are usually those of a dragging sensation, but not often amounting to actual pain, while later pressure and gastric symptoms become more marked. He alluded to the rarity with which diagnosis has been made previous to operation or autopsy, the most common mistake having been the diagnosing of a cyst owing to the semi-fluctuating sensation imparted by the fat. To avoid this mistake he advised a puncture as, in his opinion, a dry puncture into any fluctuating tumor always suggested the former. He went into some detail in reference to the differential diagnosis and took up a number of conditions with which such cases might be confounded. As to the question of treatment, he believed it to be necessarily operative which, however, was at the same time very dangerous by the time assistance has been sought or interference consented to. In his opinion the three possible dangers were, (1) destroying the blood supply to the overlying length of intestine crossing the tumor with resulting gangrene; (2) shock when operating for the necessary length of time in the exposed abdomen, and (3) tearing the vena cava in separating it from the growth. He quoted Adami's method of avoiding the first danger, and the best way of overcoming the others. The operation he employed was described in detail, and a list was given of the men who have successfully operated on these cases. The paper concluded by giving a very full history of the patient with the pathological condition of the tumor and a lengthy bibliography.

Dr. J. E. Allaben, Illinois, asked why the tumor could not have been treated in the same way as any simple cyst of the ovary where there were numerous adhesions, *i. e.*, simply opened and drained with counter drainage from the vagina. He reported having done this in a case of his own with good results.

Dr. Johnston, in replying to Dr. Allaben, said the tumor being a solid one it was not possible to open and drain it.

A brief discussion followed of certain questions regarding the surgery of the biliary tract more especially the indications for operation and the importance of drainage. Dr. Maurice H. Richardson, of Boston, especially emphasized the following four points:

(1) The prevention of hernia which he said was best accomplished by making a muscle-splitting incision in the right upper quadrant, avoiding the complete section of the motor terminals of the intercostal nerves. This incision sufficed for the majority of cases and for all easy operations, but the muscles in deep dissections of great extent might have to be cut.

(2) Permanent biliary fistula always meant unrelieved obstruction to the common duct, either from an undiscovered stone or the contraction of an inflammatory condition about the duct.

(3) The indications for operation to-day include the known existence of gallstone, as demonstrated at abdominal operations for other lesions, provided that the patient's general and local conditions were favorable. The removal of gallstones under those circumstances might be accomplished immediately if the original abdominal operation is not a serious one, but it should not otherwise be performed until convalescence had been fully established.

(4) Drainage was essential for a complete cure, especially when infections were present either in the gall bladder or in the biliary passages. This drainage should be full, free and persistent, and bile should be allowed to flow through the wound until the flow ceases spontaneously. His personal experience had convinced him that immediate closure of the gall bladder and of the billiary passages might be attended by complications of a grave nature.

Dr. Archibald MacLaren, St. Paul, Minn., believed that gallstones were first formed in the gall bladder and were usually associated with recurring attacks of cholecystitis, usually of a sub-acute character. He believed that after the formation of stones in the gall bladder they might, under favorable conditions, remain for long periods of time without causing any characteristic symptoms, the so-called slumbering gallstones. He urged great care in the removal of stones lest some should be left behind, and mentioned a case of his own in which after the removal of fifteen stones the patient died on the fifth day, and post-mortem examination showed several stones impacted low down in the common duct. He commented on the many analogies between the appendix and the gall bladder, and referred to the great uncertainty in the minds of many men as to when gallstones should be removed from the gall bladder. He advised that they be removed as soon as a diagnosis could be made with certainty. He gave as the complications produced by a stone in the common duct, first, jaundice; second, cholangitis; third, peritonitis; fourth, inflammation of the pancreas, and fifth, cancer; and then took up the question of the treatment of the opening after removing a stone from the common duct, which he said should usually be done by draining the duct. He reported having operated on fifteen gallstone cases within the past seven months, fourteen of which recovered and one died.

Dr. J. D. Bryant, New York, spoke in favor of full and complete drainage, and alluded to the fact that the duodenum and the gall bladder were very common points of entrance of infection.

Dr. C. O. Thienhaus, Minneapolis, gave a blackboard demonstration of his method of operating in these cases.

Dr. J. E. Moore, Minneapolis, stated that he had recently learned three important points in connection with this subject; the first of which was the advisability of early operation, second, the importance of thorough drainage, and third, how unwise it was to give up a patient as long as there was life.

Dr. Ernest Laplace, Philadelphia, referred to the work of Professor Kehr on this subject, agreed with the author on the question of drainage, and urged in addition to the drainage tubes the use of a large amount of gauze around the tube.

Dr. W. J. Mayo, Rochester, agreed with the author as to the advisability of early operation and the necessity for drainage in most cases.

Dr. J. C. Bloodgood, Baltimore, gave some details of the work done along this line by Dr. Halsted of Baltimore, and agreed in the assertion that secondary operations should, if possible, be avoided by making sure to remove all the stones at once.

Dr. Richardson, in closing, stated that he was still uncertain in his own mind as to whether the gall bladder should be removed in all cases, or simply drained, as he knew that when the gall bladder was removed some trouble always resulted, although he was not sure just what it was.

Dr. MACLAREN, in closing, gave a blackboard demonstration of a part of his operative procedure.

APPENDICITIS IN CHILDREN.

Dr. A. J. McCOSH, New York, thought there was still much to learn about appendicitis. As to its etiology there was great ignorance. Its symptoms were often puzzling, hence the almost universal advice to operate in the early stage of the attack. It was desirable, but often dangerous to wait for the quiescent stage. Dr. McCosh believed it to be wisest to operate at once if inflammation be confined to the appendix. If infection had spread beyond, delay of some hours or even days, was often beneficial. This was the drift of present surgical opinion. Dr. Ochsner's plan of treatment had saved many lives. Dr. McCosh believed in this treatment if not followed blindly.

The frequency of appendicitis in children was not always properly appreciated by the general practitioner. Surgeons often found that appendices after removal show signs of old inflammation corresponding with the so-called "bilious attacks" of infancy or childhood.

In children, symptoms were apt to be masked. Pain was not often localized, neither was tenderness. Muscular rigidity was apt to be absent, or not appreciable on account of restlessness and fright of the child. Vomiting was probably, in children, the most important, or at least the most manifest, symptom. Appendicitis in children was sometimes difficult to differentiate from acute indigestion, or the early stages of gastro-enteritis. It was often very difficult to differentiate from diaphragmatic pleurisy. The progress of the disease in children was marked often by its insidiousness. A case, apparently mild, would drift almost without signs into a desperate one with a general peritonitis. There seems in children less tendency for the inflammation to become localized. For these reasons he advised immediate operation in children at any stage of the disease.

He gave age statistics of 1,000 cases on which he had operated. Between the ages of twenty and thirty-five the proportion was over 50%. Before twenty, it was 26½%. Before fifteen it was 15%. Before ten it was .068%. The youngest cases were twelve and twelve and one-half months. The oldest was seventy-two and one-half years. In 1,500 cases which he had personally examined, he gave the age at which the first symptom of appendicitis manifested itself. The proportion in the first five years of life was 7½%. In the first fifteen years it was 31%.

(To be continued.)

Recent Literature.

A Textbook upon Pathogenic Bacteria. For students of Medicine and Physicians. By JOSEPH MCFARLAND, M.D., Professor of Pathology and Bacteriology in the Medico-Chirurgical College, Philadelphia; Pathologist to the Philadelphia Hospital and to the Medico-Chirurgical Hospital, Philadelphia. Octavo. 629 pages. Philadelphia, New York, London: W. B. Saunders & Co. 1903.

We can heartily recommend this work both to students and practitioners. In its previous form it was regarded as one of the best treatises on bacteriology, and in the present edition its value has been increased by many additions. In fact, so much new matter has been incorporated, and the alterations and improvements have been so numerous that practically a new work is presented. The chapters on infection and immunity are specially commendable. The recent researches of Bordet, Calmette, Ehrlich and his school are described in sufficient detail to be intelligible to the elementary student, and the modern theories of immunity are clearly presented. An admirable feature which other American medical authors might do well to adopt is the introduction of references to the most important monographs in the literature. Appended to the work is a bibliographical index containing the names of over six hundred authors. The type and general appearance of the book deserve high praise. The illustrations are numerous and excellent.

The Therapeutics of Mineral Springs and Climates. By I. BURNEY YEO, M.D., F.R.C.P., Emeritus Professor of Medicine in King's College, London, Consulting Physician to King's College Hospital, Hon. Fellow of King's College. Chicago: W. T. Keener & Co. 1904.

Dr. Yeo, whose published work has invariably been characterized by its peculiarly practical applications, now offers the profession a most useful compendium on the therapeutics of mineral springs and climates. There are few matters about which the ordinary, untraveled physician is less familiar than the exact attributes of various mineral springs and health resorts. This book of Dr. Yeo supplies this deficient knowledge. The book is founded on a popular treatise of his on "Climate and Health Resorts," which, however, has long been out of print. The present book is an attempt to write a systematic, complete and useful guide to the proper selection of suitable climates or mineral springs resorts. The volume of 760 pages, including an adequate index, is divided into two parts. The first part is devoted to the study of mineral springs, which are described in alphabetical order for convenience, those of minor importance to English invalids being printed in smaller type. In the second part the question of climate is discussed in a somewhat popular fashion, with no claim to the dignity of a systematic work on climatology.

The text is eminently practical in its general character, and offers all sorts of suggestions as to details in price, amusements and other accessories which the invalid and his physician desire to know. The manifest fact is taken into account that the efficacy of climate or waters depends in a measure at least upon the attractiveness of the surroundings and the character of the life which the patient must lead. Following the description of the various mineral springs, a section on the applications of mineral waters and baths to the alleviation and cure of disease is given, which should also be of very great use, particularly to physicians. With the wealth of information which the volume contains, it is written in so concise a fashion that its size remains small. We take pleasure in commending this book.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, OCTOBER 13, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

Subscription Terms: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 and 29 Bromfield Street, Boston, Mass.

THE EXANTHEMATIC TYPE OF TYPHOID FEVER IN CHILDREN.

Some two years ago a thesis was upheld at Lyons by Dr. E. Boulin in which the author studied the exanthematic type of typhoid fever, principally as to its prognosis. This form of typhoid is remarkable from the extreme abundance of the rose spots, and the author gives the ideas which have been developed regarding the affection by Weill and Lesieur, who have laid much stress on this particular form which they have designated by the name of exanthematic in order to indicate the abnormal development of the cutaneous eruption. The researches of the two former authorities were carried out in two hundred and eighty cases of typhoid fever in children and they frequently met with this form.

The fundamental characteristic of this particular type is the prominence of the cutaneous eruption. Rose spots are often precocious in their appearance, and may be met with anywhere from the fourth to the seventh day of the disease. Their dimensions are frequently exaggerated, and they may be ecchymotic or papular, but under all circumstances their number is greatly increased, and generally they are to be found over the entire cutaneous surface. They are met with on the abdomen, the thorax, epigastrium, neck, back, the thighs, arms, and sometimes on the legs and forearms; they have even been observed on the face and hands. It is often quite difficult to determine the number of these rose spots, and these cases recall in a minor degree the remarkable one recorded by Murchison who was able to count over one thousand on his patient.

There does not seem to be any relationship between the importance of the exanthema and the extent of desquamation, another symptom to which Weill has drawn attention, and it is for this reason that both he and Lesieur did not wish to give the name of cutaneous type to the group of cases which they studied, but rather that of eruptive form or still better exanthematic, on account of the absence of intestinal lesions.

The second character of this form is the absence or the extreme reduction of symptoms of the enanthema, that is to say, the mildness or even absence of symptoms of the digestive tract. In point of fact, there are no disturbances of the digestion and there is no objective or subjective symptom which would draw one's attention to the gastro-intestinal tract; usually colicky pain, vomiting, diarrhea or constipation are wanting; the abdomen is flat, and no gurgling can be elicited in the cecal region. The liver is not increased in size, while the spleen may be normal or only slightly tumefied. The tongue does not present the ordinary characters possessed by it in typhoid fever. If diarrhea is present it is usually slight and rapidly disappears, but on the other hand, constipation is perhaps more frequent though easily overcome by the use of enemata. If by chance the tongue is coated it will usually clear up before the rose spots have disappeared, and a long time before the disease has attained the end of its evolution.

It is evident that one should take into consideration those mixed cases in which the external and internal lesions are associated, but it may be said that in the majority of these cases the digestive disturbances decrease or disappear the day that the skin lesions make their appearance or become generalized. For that matter this is a cutaneous form in which the symptoms simply predominate in the integuments, without absolute exclusion of the viscera, and these marked lesions in no way prevent the participation of the nervous system, for example. Then, again, there are the cutaneous types of typhoid fever accompanied by very high temperature, delirium, an exaggerated patellar reflex or even epileptiform attacks.

The excellent prognosis of exanthematic typhoid represents the third principal characteristic of the affection, and in all the reported cases a favorable outcome has been reported, except in one instance in which there was an abundant eruption of rose spots accompanied by an intense diarrhea. The child died of intestinal hemorrhage, and at the autopsy tuberculous ulcerations of the intestine were found which certainly played an important part in the complexity of the symptomatic phenomena and

the death of the patient. In the large majority of cases, however, the patient is well at the end of from fifteen to twenty days. The fever will frequently give way to the treatment by cold baths in eight or ten days, and rare are the instances where the temperature has remained high for longer than three weeks. It may be said that never has any serious complication supervened to disturb the benign evolution of the disease in contrast to the non-exanthematic forms in which the mortality has been estimated as upward of 6%.

Weill and Lesieur believe that at present one may solve the question of the prognostic value of lenticular rose spots. Leaving aside those severe cases in which the lesions exist, both in the skin and intestine, and the slight cases in which there is neither exanthema or enanthema, one may admit as a general rule, at least for the cases of medium intensity which are the most numerous, that an abundant eruption of lenticular rose spots indicates an attenuation of the intestinal symptoms and should render the prognosis excellent. The mildness of the affection, the extreme mildness of the digestive disturbances, the predominance of cutaneous lesions, would seem to justify the description of a new clinical type of the disease if one is able to prove that these three elements usually go together and that their association is relatively frequent. The following figures were obtained by Weill and Lesieur: Out of 280 cases, 73 represented an exceptionally intense exanthema, and among these 73, fifteen only presented digestive disturbances of sufficient severity to be noticed. On the other hand, these same authorities studied the cases of typhoid in which no marked digestive disturbances were present, and out of 73 cases they were able to find only fifteen in which the eruption was insignificant.

If these results are considered along with the fact of the absence of mortality in the eruptive forms without diarrhea and a mortality of more than 6% found in the forms in which the cutaneous manifestations are wanting or slight, it would seem to show that Weill and Lesieur were correct, including in the same description the three characteristics which so often are observed simultaneously.

REPORT OF MARYLAND TUBERCULOSIS COMMISSION.

THE preliminary report of the Tuberculosis Commission of Maryland, under the presidency of Dr. W. S. Thayer, is a document of interest and importance, containing much which the physician may take to heart as well as a vast amount of information for the laity. At the outset under eighteen headings are given the facts concerning the disease as regards methods of infection, mortality and instruction to the public. This is not new but is a valuable restatement of facts which the people at large should know and which we are inclined to think they are gradually learning.

Speaking of the mortality from tuberculosis in Maryland and in Baltimore, it appears that so far as statistics are available there are now ten thousand cases, at least, in the state, with a greater incidence of the disease among negroes. In 1902 there were 2,560 deaths from tuberculosis in all its forms showing slight difference in mortality from that elsewhere in the country. It is of interest that a comparison of the figures of Baltimore with New York and Boston shows that the improvement observed in the latter cities has not occurred in Baltimore, the reason for which is given as the active anti-tuberculosis campaign which now for some years has been carried out both in New York and Boston. Figures are adduced which go to show that from the deaths of wage earning men alone the community suffers a potential loss in one year of upwards of $7,500,000. These figures are undoubtedly impressive, and yet indirectly the death of the head of the family may mean much more than this by forcing the support of the dependents upon the older children who thereby must curtail their education and so generally lower the standard of education.

Such deductions as the foregoing are certainly worth making and expressing in type, and should do something toward impressing even the unthinking part of the population with the enormous consequences of the disease, which it is being called upon to combat in conjunction with the appointed authorities. We have not the space to enter into the admirable details carefully systematized which the first twenty-three pages of this pamphlet offer. We have seen no better presentation of the subject as addressed to the lay mind.

As a further means of impressing the facts upon the people, the Commission in conjunction with the State Board of Health proposes to hold a tuberculosis exposition in Baltimore from Jan. 25 to Feb. 1. This exposition is under the chairmanship of Dr. Henry Barton Jacobs, and will be held in McCoy Hall, which has been offered by the trustees of the Johns Hopkins University.

The history and nature of the disease will be illustrated by exhibits, and graphic statistics will be presented, together with plans and models of hospitals and sanitaria, both in this country and in Europe. Each day lectures and demonstrations from persons who speak with authority will be given. A somewhat similar exposition is now being held in Boston, to which reference is made in another column. If only such exhibits may be made to reach those who can most benefit by them, their success must be unquestioned; in any event, they cannot fail to do something toward calling further public attention to the disease, its prophylaxis and treatment.

Following this first and eminently practical section is a carefully prepared statistical study of the prevalence and distribution of the disease in Maryland, illustrated by several graphic charts. The volume also includes several papers which have been read on previous occasions relating to the general subject by Drs. Thayer, Flick, Ravenel, Salmon, Adami and Knopf. We have on previous occasions so often called attention to the desirability of promulgating what this pamphlet represents that a reiteration is unnecessary. We are glad, however, to commend this report as one of the most thorough and painstaking which it has been our fortune to see. That the Commission will do much towards the relief of tuberculosis in the state is a foregone conclusion.

DIMINISHED MEDICAL CLASSES.

The effect of added requirements for the student of medicine is having its effect in certain institutions in reducing the enrollment. We note that at the College of Physicians and Surgeons in affiliation with Columbia University the present entering class is approximately one hundred students as against one hundred and ten the previous year. This falling off is explained by the increased entrance requirements and also by an additional fee tuition of fifty dollars. Considering the fact that the graduating class at this same institution numbers nearly one hundred and ninety, the reduction is the more significant. We do not know what the entering class at the Johns Hopkins University is this year. A bachelor's degree or its equivalent has always been required at this institution and the classes have never been large, although we believe increasing year by year. The Harvard Medical School likewise has an exceptionally small enrollment of first-year students, due presumably to the same cause. Unquestionably the requirement of a degree will have a far more wide-reaching effect upon enrollment than the lengthening of the course to four years, which, when first undertaken, was regarded as a radical step. The reflection from these facts is forced upon us that not a few medical students up to this time have been men inadequately educated preliminary to their medical course. The ultimate effect of increased requirements will no doubt be salutary, and it is not to be supposed that the community will ever suffer from lack of doctors. Nevertheless, the extraordinary reduction in the size of classes should lead to a careful reconsideration of the whole subject, and a clear recognition of the fact that too stringent entrance requirements may be as harmful as too lax ones in keeping capable men out of the profession.

MEDICAL NOTES.

"Laute Barbarei." — We learn from one of the foreign visitors from St. Louis, who has remembrances of the modest *Circus Renz* in his home in Berlin, that he has been duly impressed with the triple ring of the American circus, and particularly was he overcome with the American spirit of competition at St. Louis where in some instances at the Congress of Arts and Sciences two speakers were called upon to address audiences in the same room to the manifest detriment of the weaker voiced orator. His general characterization of the Exposition was: "laute Barbarei."

New Surgical Building and Clinical Amphitheater of Johns Hopkins Hospital. — There was a formal public opening of the surgical building and new clinical amphitheater of the Johns Hopkins Hospital, Oct. 25. The exercises consisted of addresses by invited guests and others in the new clinical amphitheater. These were followed by luncheon in the administration building of the hospital. In the afternoon a memorial to Dr. Lazear was unveiled with appropriate addresses in the clinical amphitheater. The committee of arrangements consisted of Drs. William H. Welch, William Osler, William S. Halsted and Henry M. Hurd.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon Oct. 12, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 51, scarlatina 12, typhoid fever 48, measles 5, smallpox 0.

BEQUESTS. — By the will of the late Joseph P. Flatley the Carney Hospital received $500, St. Mary's Infant Asylum $500, St. Elizabeth's Hospital $250, and various other charities are also remembered.

MEETING OF THE VERMONT MEDICAL SOCIETY. — The Vermont State Medical Society holds its ninety-first annual meeting at Rutland, Oct. 13 and 14, under the presidency of Dr. W. H. Bryant of Ludlow.

STREET CAR VENTILATION. — The Board of Health of Cambridge has expressed the opinion that the health of citizens is threatened by improperly ventilated cars. An order has, therefore, been adopted directing the attention of the State Board of Health and the Railroad Commissioners to this defect in the cars and requesting that steps be taken to procure adequate ventilation.

TUBERCULOSIS EXHIBIT. — At the fair now being held at Mechanics Building in Boston, the Boston Society for the Relief and Control of Tuberculosis has arranged an exhibit illustrating the work being done toward combating tuberculosis. Among many objects of interest the following are worthy of mention: a complete photographic exhibit of the grounds at Rutland, together with a lifelike model of a young woman in a chair arranged for the morning, with spit cup, novel, knitting, thermometer and hot water bottle; exhibits from the Boards of Health of New York, Baltimore, Massachusetts and Boston; photographs from Dr. Trudeau of Saranac; models of tents, shacks, chairs, chair tents and tents made on approved models; statistical charts from the Prudential Insurance Company. The exhibit is designed primarily for such people as would naturally attend a fair of this character, but it is also of value to one wishing a working knowledge of what is being done toward combating tuberculosis.

LEGALITY OF CHRISTIAN SCIENCE IN NEW HAMPSHIRE. — The Supreme Court of the State of New Hampshire has recently handed down a decision concerning the practice of Christian Science in that state. Suit was brought to recover damages by a person said to have been injured through treatment by a practitioner of Christian Science. The claim was that the patient had not been cured and that her cure was delayed by the treatment to which she had been subjected. In the lower court the verdict was for the defendant. The Supreme Court has reaffirmed the decision and dismissed the bill. The significance of this ruling is not at first clear, but it appears that the court was not passing upon the legality of Christian Science treatment as such, but rather upon the relations between the individual claiming damages and the practitioner. It was evident that the patient undertook the treatment with sufficient knowledge of what she was entering upon to render her claims invalid. On evidence presented the law was not violated, and the case was dismissed simply because there was not sufficient evidence to maintain an action in tort. This, however, has no bearing upon the status of Christian Science healing in relation to the criminal law of the state.

NEW YORK.

BEQUESTS BY MRS. M. A. OGDEN. — Among the bequests in the will of the late Mrs. Mariana A. Ogden of New York, in addition to $200,000 to the Arnot-Ogden Home at Elmira, N. Y., are $5,000 each to St. Mary's Free Hospital for Children, New York, and several other charities.

"FEST-COMMERS" FOR FOREIGN VISITORS. — On Oct. 8 a "Grosser Fest-Commers" was given at the Arion clubhouse by the Vereinigung Alter Deutscher Studenten in Amerika, of which Dr. Carl Beck is president, in honor of distinguished foreigners who have been attending the Congress of Arts and Sciences at St. Louis.

DR. A. E. MACDONALD RETIRES. — On Oct. 1 Dr. A. E. Macdonald retired from the superintendency of the Manhattan State Hospital, East, on Ward's Island. His successor has not as yet been appointed. Dr. Macdonald had held the position ever since the state hospitals were established, and for many years previous was superintendent of the city hospitals for the insane on Ward's and Blackwell's islands.

PROFESSOR ORTH. — Professor Orth of Berlin, who sailed for Germany on Oct. 4, was given a dinner at the Yale Club on Oct. 2 by former pupils and others of the profession. The guest of the evening expressed his great pleasure at the advance of pathological study in this country, and among the others who spoke were Drs. W. W. Keen of Philadelphia, and Drs. Jacobi, Janeway and Carl Beck of New York. Professor Cullen of the Johns Hopkins University was toastmaster.

THE SUNKEN VILLAGE. — What has been known as the Sunken Village, a colony of "squatters" who have lived for many years in shanties on a lot several feet below the street grade, on

Broadway between 61st and 62d streets, has just been cleared of its occupants by order of the owners. The health of this little settlement, which was quite populous, is said to have been always excellent, owing possibly to the following notice (for the exact wording of which it is to be presumed the Health Department is not responsible) displayed near an old well on the premises: "The watter from this well must not be used for drinking purposes. It contains sewage by order of the Board of Health."

Columbia Gives Honorary Degrees and Receives Endowments. — At the first regular meeting of the trustees of Columbia University this season, held Oct. 3, the honorary degree of Doctor of Science was conferred upon Sir William Ramsay, and also upon William H. Nicholls of New York, who was recently elected president of the Society of Chemical Industry. Among recent gifts to the university there were announced $225,000 additional, from Mr. and Mrs. William D. Sloane, for the Sloane Maternity Hospital, and $60,000 from Horace W. Carpentier for endowing a chair in the medical school. The particular professorship is not stated.

Recent Work of the Board of Health. — At the first meeting after the summer recess of the Medical Society of the County of New York, held Sept. 26, officials of the Board of Health had an opportunity of telling something of the recent work of the Department. The President, Dr. Darlington, read a paper on "Precautions Used by the New York City Department of Health to Prevent the Spread of Contagious Diseases in the Schools," in the course of which he stated that by the employment of trained nurses to look after children excluded from the schools on account of various contagious affections and to instruct the parents in their proper care, the number of exclusions had been reduced in a few months from about 25,000 to 500. Dr. John J. Cronin, assistant chief medical inspector, read a paper on "The Work of the Summer Corps," and Dr. Robert J. Wilson, assistant bacteriologist, one on "Disinfection as Practiced by the Department."

Miscellany.

RADIO-ACTIVITY OF THE WATERS OF THE HOT SPRINGS RESERVATION.

Dr. Bertram B. Boltwood, of New Haven, Conn., who was authorized by the Secretary of the Interior to examine into the radio-active properties of the waters of the Hot Springs Reservation, at Hot Springs, Ark., has submitted his report, and the Secretary now has it under consideration. The Hot Springs Reservation, comprising about 911 acres, belongs to the United States and is under the control of the Secretary of the Interior. There are about 48 springs issuing from the base of Hot Springs Mountain, of varying degrees of temperature and having a combined flow of about 850,000 gallons daily. There are 23 bath-houses receiving water under lease from the United States, besides the government Free Bath House for indigent persons, and the Army and Navy General Hospital, the latter being under the supervision of the Secretary of War. The reservation is managed by a superintendent who maintains order and sees that the bath-houses are conducted in a proper manner. Many thousands of persons visit Hot Springs every year for the purpose of taking the baths, and the government is spending large sums of money in improving and beautifying the reservation.

In the introduction to his report, Dr. Boltwood gives a lucid and interesting account of the present state of our knowledge concerning the radio-activity of matter, and a brief résumé of the history of discoveries relating to this phenomenon. He states that the phenomenon of radio-activity exhibited by certain substances consists in the spontaneous emission of radiant energy, and was first observed by Becquerel, in the case of the salts of the element uranium. The phenomenon was later noted by Schmidt, in the case of the salts of the element thorium. Then followed the striking investigations of M. and Mme. Curie, which led to the discovery of two new elements, polonium and radium, which possess the property of radio-activity to a marked degree. A third element, actinium, discovered by Debierne, is also strongly radio-active. The existence of another radio-active element is claimed by Hofmann, but very little is known at present of the properties of this substance. A very considerable number of ordinary substances (rocks and metals) have also been found to be very slightly radio-active; but it is as yet doubtful whether this is due to the properties of the simple substances themselves, or to the presence of minute traces of the strongly radio-active elements. The rays sent out by radio-active substances are known as "Becquerel rays," and have been shown to be complex in character. In the case of the radiations of radium salts, the rays have been found to consist of three different types, differing in the readiness with which they are absorbed by matter, and the extent to which they are deflected in a magnetic field.

When solutions of radium salts are allowed to stand in a closed vessel it is found that an extremely minute quantity of a highly radio-active gas gradually accumulates. This gas is known as the "radium emanation." Its radio-active existence is of relatively short duration, its radio-active power falling to about one half after four days. The walls of a vessel which has contained this radium emanation also become radio-active, by what is called "induced" or "excited" activity, and the theory is that by the radio-active disintegration of the radium emanation a solid has been deposited on the surface of the wall which is itself radio-active. This solid is called "emanation x," and its rate of decay is very rapid. The emanation contained in any solid salt of radium can be entirely removed by dissolving the salt in water and boiling the solution. If the solution is evaporated to dryness, the solid salt will again be formed. This freshly prepared salt is found to be only about 25% as radio-active as the same salt before the removal of the gas emanation. Its radio-activity, however, will gradually increase on standing until at the

end of about one month, its activity will have reached a maximum beyond which no further change will take place. This increase in the radio-activity of the salt is due to the production of fresh quantities of emanation within it. The action of the Becquerel rays may be divided into two general classes. They produce a latent image on a photographic plate, and they cause gases through which they pass to become conductors of electricity. They also give rise to the phenomenon of fluorescence when they impinge on certain other substances, notably barium, platinocyanide, willimite, kunzite and diamond. For the accurate determination and measurement of the radio-active power of substances, only the effect of the rays on the conductivity of gases has been found suitable, and the instruments usually employed for this purpose are the electrometer and the electroscope.

The occurrence of radio-active properties in a natural water was first observed by C. T. R. Wilson, who found that rain water on evaporation left a slightly radio-active solid. The water from the municipal supply of Cambridge, England, was found by J. J. Thomson to contain a radio-active gas which could be removed by boiling the water. The properties of this gas were found to be very similar to the radium emanation. The water was found to contain no radio-active solid in solution and did not possess the property of forming more of the radio-active gas on standing. The water supply of New Haven, Conn., was also found to contain a radio-active gas resembling the radium emanation. Curie and Laborde have recently examined the gases given off at certain European mineral springs, and also by the waters of the springs on boiling. They found that the gas obtained from the Gratenbucker Spring at Bad Gastein, Austria, was by far the most highly radio-active of any examined by them. Very little, if any, radio-active gas was obtained from water which had stood in flasks for a couple of months, thus showing that the radio-activity was not due to radium salts dissolved in the waters, but to the absorption by the waters of radium emanation which had been formed elsewhere.

In making an examination of the waters of the Hot Springs Reservation, the samples were collected at the springs and placed in sealed glass receptacles. These were shipped to New Haven, Conn., where the tests were conducted. The method of examination used by Dr. Boltwood was to separate the gases and emanations from the water by boiling the water in an apparatus which is a modification of that described by Reichhardt, after which the emanation was measured by an electroscope somewhat similar to that used by Wilson. In expressing the results of his experiments, Dr. Boltwood found it necessary to devise a new system of standardization, which will permit the direct comparison of the results obtained with the different waters and by different experimenters. Curie in his investigations of European mineral springs used as a standard the quantity of emanation produced by a known weight of pure radium bromide. The objection to this is that it is impossible for others to obtain at present even small quantities of radium bromide of known and established purity. The plan used by other investigators, of expressing the result in the number of ions produced, involves a standard which is uncertain and difficult to determine. The standard originated by Dr. Boltwood, and for which he is entitled to great credit, is the quantity of radium emanation set free when a known weight of uranium contained in a natural mineral is dissolved in a suitable reagent. This standard can be readily reproduced and will permit the reduction of the results to terms of pure radium, if that becomes the future basis of expression. The mineral used by Dr. Boltwood was pure uraninite from Spruce Pine, N. C.

Dr. Boltwood describes in detail the methods pursued by him in his investigations, which were very exhaustive and covered a period of several months. The results of the electroscopic tests of the gases obtained by boiling the waters were very satisfactory, as they showed that the waters at Hot Springs are radio-active to a marked degree; and from other tests, taken to determine the properties of the emanation from the waters, it was found that the properties of these radio-active gases were identical with those of the radium emanation.

On the other hand, when water from which the gas had once been taken was boiled a second time, after being allowed to stand, no radio-activity was detected in the gas obtained from the second boiling; and it was therefore concluded that little or no radium salts existed in the waters. This conclusion was strengthened by the fact that a test of the residue of the waters which had been left by evaporation also failed to disclose any sign of radio-activity of this solid substance. A sample from the tufa deposit formed by some of the springs on issuing from the ground was also tested, and it was found that the amount of radium contained in 100 gm. of the tufa was less than one millionth of the quantity of radium associated with an equal weight of uranium in pitchblende. Samples of the gas which arose from the springs were also tested, and its radio-activity was found to be less than that of an equal volume of gas obtained by boiling the waters from the springs. The following conclusions are reached by Dr. Boltwood as the result of his investigations:

1. The waters of the springs on the Hot Springs Reservation are all radio-active to a marked degree.

2. The radio-activity of the waters is due to dissolved radium emanation (a gas) and not to the presence of salts of radium or other radio-active solids.

3. The tufa deposited by the springs does not contain appreciable quantities of radium compounds.

THE CHAIR OF MEDICINE AT OXFORD.

THE *Medical News* London letter, Oct. 8, contains the following statements in regard to the chair of medicine at Oxford:

The most important event connected with it [the meeting of the British Medical Association] was the engineering which ended in the capture of the Regius Professorship of Medicine by the anti-Sanderson faction. The state of affairs was described in your columns some months ago. Sir John Burdon Sanderson, the previous occupant of the chair, was anxious that it should be transformed into a chair of pure pathology, and strongly urged the appointment of Dr. James Ritchie, who is the University lecturer on that branch of medical science. Ritchie, however, has the disadvantage in the eyes of Oxford men, of the high and mighty type — a breed of superior person peculiar to this happy island — of being only an adopted son of their august Alma Mater; moreover, his speech betrayeth him perhaps too readily as a native of Caledonia, stern and wild. Against these deficiencies it matters nothing to your academic prig that he is one of the first pathologists in the United Kingdom and a man of large culture and breadth of mind. Therefore, although the teaching staff supported Ritchie, he has been set aside. Till shortly before the announcement of the election of Prof. William Osler, it seemed likely that Ritchie would get the appointment, as his opponents had no candidate of real eminence whom they

could put forward for the office. The suggestion of Osler must have been a veritable godsend to them, and plans were at once laid to secure him. It had been arranged that he should stay with the Dean of Christ Church, but at the last moment Burdon Sanderson carried him off to his lair. Sanderson has, rightly or wrongly, the reputation of an arch-Jesuit, and it was greatly feared that he might cajole or bore Osler out of accepting the post. Nevertheless, Osler was hooked and safely landed, and by way of compensation Ritchie's lectureship is, I believe, to be raised to the dignity of a chair, to which an increased stipend will be attached. This question of stipend, it may be mentioned, was one of the difficulties in the way of getting a clinician of any professional position to accept the chair. From this point of view, the University has certainly been fortunate in securing Osler, but it may be doubted whether that distinguished physician has made an equally good bargain for himself. The Chair of Medicine at Oxford is an expensive luxury. It is an open secret that the Regius Professor at Cambridge spends a good deal more than he receives on maintaining the dignity of his position, entertaining distinguished visitors and the like. Moreover, his time is so fully occupied with multifarious academic duties that he has no time for private practice. Dr. Clifford Allbutt is, for a physician, a wealthy man, having for many years had the lion's share of consulting practice in the north of England, and he was thus enabled to accumulate a fortune which makes him altogether independent of his profession. I do not know if Dr. Osler is so fortunately situated, but it is to be presumed that he counted the cost of the dignity offered to him and accepted it with his eyes open.

Correspondence.

THE ASSOUAN CURE.
FROM A LAYMAN'S POINT OF VIEW.

October, 1904.

Mr. Editor: While concurring so far as a mere layman can in the very good views expressed so clearly in Dr. Morrill's article, I am disposed, in the first instance, to accentuate one point of his advice even more strongly, for the modern version of the old proverb should certainly be "See Cairo and die." Increasing throngs of invalids, arriving at Alexandria after a more or less exhausting sea voyage, engage in the necessary conflict with the Arab boatmen, hustle themselves into the train, and arrive at Cairo half an hour before a chilly sunset to deposit themselves, with their vast zoölogical collection of assorted microbes, in the damp and sunless rooms which alone remain vacant in the huge stone Cairo hotels. The sun has probably been shining brightly all day, and the unwonted spectacle gives them, particularly the British and the Germans, the notion that they have come to a land of perennial warmth. This prejudice is further deepened by the spectacle of the while flannel trousers and straw hats of the more robust young winter residents, who are returning from their golf and tennis, and the bare chests of their stronger sisters, who are bravely taking their open-air, five o'clock tea upon the terrace, there being, indeed, no place within-doors, for the moment a Britisher sees the sun in winter he rushes into flannels. Exhilarated by the hope of instant cure, they plunge into the most fatiguing forms of sightseeing, possibly upon a donkey's back. The day after this they usually send for the resident doctor and are duly impressed with the gravity of their situation. They eagerly accept his advice to rest a fortnight or so before going up river, and probably go to Mena House, Helouan, or possibly even a Cairo sanitarium. Here they live in fireless rooms, which have been inhabited for many seasons by their forerunners, and meet and associate with their companion invalids. American systems particularly will here meet and be exposed to all assorted European and Asiatic germs, coming to Yankee constitutions as a novelty. If they are not really ill when they begin this rest, they undoubtedly will be after a week or two. They will have to keep to their rooms and cower over a gas fire at the rate of some thirty shillings to two pounds per day; perhaps once or twice a week, if the sun and wind permit, being allowed to sit for an hour or two under heavy blankets in a sunny spot in the garden. Helouan is possibly a little better. Moreover, arriving there the invalid has the satisfaction of being first called upon to pay the expense of thoroughly disinfecting his rooms against the last tuberculous patient. This is not done in the other places. Moreover, the climate both at Helouan and Mena House is somewhat better than that of Cairo, which resembles in the two winter months nothing so much as an extremely raw week of an early Boston April.

On the other hand, I need not repeat Dr. Morrill's warning against the invalids embarking on the Nile steamer. No! The only thing for him to do is to go through Cairo, if necessary with a gun in his pocket. One night there even may do the mischief. The wagon-lit train is extremely comfortable and leaves Cairo for Assouan every other evening at eight o'clock. I feel confident that it is far better for one who is not perfectly strong to ship himself directly to Assouan on this train, though, if necessary, he can break the journey at Luxor, where he arrives on the following morning.

I am convinced that no microbes can live at Assouan. To assure a cure, therefore, the patient has only to live and breathe the air. If he does that, all will be well. No layman is allowed or would be permitted to say anything more about the cure, though I may perhaps venture a statement, which, I take it, corresponds with the last sentence in the second of Dr. Morrill's propositions, that there is a general feeling among those experienced in Egypt that it is not particularly good for the throat.

In other respects I do not think Dr. Morrill does quite justice to the attractions of the place. The main point that clearly impresses us both is the necessity of showing the vast difference that exists between the climate of Assouan and that of Cairo, and the advisability of not breaking the journey at the former place. Even if the patient goes into his comfortable stateroom on the train in a very weak condition, he is sure to feel himself another man with the first breaths of the wonderful desert air. But I should say that there were certainly more attractions and amusements at Assouan than at the ordinary summer hotel in the United States. The varied interests and wonder of the desert and the desert hills — almost mountains they look from the absence of any tree with which to scale — should satisfy him for many weeks, while almost every rock is covered with the hieroglyph if he wishes to learn that by no means difficult alphabet. The donkeys are not as our donkeys, but go with speed. The nature of the camel is various and amusing, and his gait, by measure of his foot-steps, may be geared as high as eighteen miles an hour, while the Nile is there with all its fascination and its excursions.

The hotels are attractively situated and well managed in every respect. They are necessarily rather expensive, and the commissariat, of course, is difficult. Good milk, meat and fresh vegetables especially are hard to get, and this is unavoidable in a land where there is no grass and no soil other than that upon the persons of the natives. The climate, too, even at Assouan, is slightly changing. Raindrops have been seen and there is an occasional chill at sunset. Doubtless this may be accounted for not only by the great reservoir but by the presence of so many Englishmen on the upper Nile. It will probably not be long before some enterprising company ventures to build a hotel away from the town and high above the river on the great sand hills by the old Coptic convent opposite Assouan. But even now I make bold to say, although I have not seen southern California, but after considerable acquaintance with all the winter resorts of Europe, that the Cataract House for winter climate is probably the best place there is.

F. J. Stimson.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 1, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Diarrheal Diseases.
New York . .	3,908,644	1,261	471	30.88	10.40	2.46	1.43	12.25
Chicago . . .	2,021,086	476	153	31.08	8.40	1.05	1.89	17.22
Philadelphia	1,407,968	399	120	27.56	8.27	3.00	1.75	9.27
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	182	48	31.41	4.94	—	3.30	10.28
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	120	—	34.98	7.50	4.16	11.66	11.66
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	54	19	33.33	7.40	3.70	1.85	16.66
Boston . . .	617,950	213	70	23.94	9.39	1.88	.94	9.86
Worcester . .	136,925	28	13	17.85	3.57	—	—	7.14
Fall River .	119,349	42	15	42.85	2.38	—	4.76	26.19
Lowell . . .	104,402	33	16	21.21	6.06	3.03	—	9.09
Cambridge .	100,998	31	9	29.03	16.13	—	—	9.68
Lynn	73,875	18	6	16.67	—	—	—	5.55
Lawrence . .	72,348	27	8	29.62	14.81	—	—	25.92
Springfield .	72,020	—	—	—	—	—	—	—
Somerville .	70,413	14	3	28.57	7.14	—	—	14.28
New Bedford	68,863	30	11	33.33	—	—	3.33	20.00
Holyoke . . .	50,538	22	8	63.63	—	9.09	—	27.27
Brockton . .	46,601	10	0	—	20.00	—	—	—
Newton . . .	39,310	9	3	11.11	—	11.11	—	—
Haverhill . .	39,061	13	5	30.80	15.40	—	7.70	7.70
Malden . . .	37,305	5	2	20.00	—	20.00	—	—
Salem	37,188	10	4	20.00	—	—	—	20.00
Chelsea . . .	36,499	16	7	18.75	—	—	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	8	4	25.00	12.50	—	—	—
Everett . . .	30,209	3	0	33.33	—	—	—	—
North Adams	29,201	10	2	40.00	—	—	20.00	—
Quincy . . .	26,798	—	—	—	—	—	—	—
Gloucester .	26,121	7	3	14.30	—	—	—	—
Waltham . .	25,797	3	—	33.33	—	—	—	—
Brookline . .	23,576	7	2	—	14.30	—	—	—
Pittsfield . .	22,870	6	2	33.33	—	—	—	—
Medford . . .	21,956	1	1	—	—	—	—	—
Chicopee . .	21,692	6	—	33.33	—	16.67	—	16.67
Northampton	20,314	9	3	22.22	—	—	—	—
Beverly . . .	15,807	7	1	28.60	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	3	1	33.33	—	—	—	33.33
Adams	14,745	1	1	—	100.00	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	4	2	—	—	—	—	—
Newburyport	14,478	5	1	20.00	—	—	—	20.00
Woburn . . .	14,315	4	1	50.00	—	—	—	—
Melrose . . .	13,819	3	2	—	33.33	—	—	—
Westfield . .	13,809	4	—	25.00	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	—	—	—	—	—	—	—
Revere . . .	13,609	3	2	—	—	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody . . .	13,406	—	—	—	—	—	—	—
Gardner . . .	13,324	—	—	—	—	—	—	—
Southbridge .	11,716	4	—	50.00	—	—	—	25.00
Watertown .	11,575	5	2	40.00	—	—	—	—
Weymouth . .	11,350	5	0	60.00	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,121; under five years of age, 1,021; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 935; acute lung diseases 269, consumption 350, scarlet fever 8, whooping cough 6, cerebrospinal meningitis 19, smallpox 2, erysipelas 5, puerperal fever 13, measles 7, typhoid fever 63, diarrheal diseases 396, diphtheria and croup 65.

From whooping cough, New York 2, Chicago 1, Philadelphia 1, Baltimore 1, Boston 1. From measles, New York 5, Baltimore 1, Pittsburg 1. From scarlet fever, New York 1, Chicago 1, Philadelphia 1, Baltimore 5. From cerebrospinal meningitis, New York 13, Baltimore 1, Worcester 2, Somerville 1, Watertown 1, Weymouth 1. From erysipelas, New York 1, Philadelphia 1, Baltimore 1, Pittsburg 2.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Sept. 17, the death-rate was 17.0. Deaths reported 4,989; acute diseases of the respiratory organs (London) 59, whooping cough 73, diphtheria 48, measles 45, smallpox 5, scarlet fever 33.

The death-rate ranged from 6.1 in Handsworth, to 31.6 in Wigan; London 15.3, West Ham 14.3, Brighton 16.1, Plymouth 17.8, Bristol 16.6, Birmingham 17.5, Leicester 16.5, Nottingham 14.5, Liverpool 22.3, Bolton 14.5, Manchester 20.9, Salford 27.8, Halifax 13.1, Bradford 18.5, Leeds 15.6, Sheffield 20.2, Hull 25.1, Cardiff 12.1, Rhondda 15.8, Merthyr Tydfil 20.8, Hornsey 12.8, Great Yarmouth 23.0.

METEOROLOGICAL RECORD.

For the week ending October 1, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. . 23	29.86	68	78	59	84	69	76	S W	N	8	10	F.	F.	.17
M. . 26	29.85	60	65	56	94	92	93	E	S W	5	8	O.	O.	.10
T. . 27	30.02	60	64	55	78	80	79	N	S	12	8	C.	C.	0
W. . 28	30.23	56	60	53	88	76	82	E	S	4	10	O.	C.	0
T. . 29	29.96	59	66	52	74	94	84	S W	S W	10	20	O.	R.	.71
F. . 30	29.54	68	79	57	75	58	66	W	W	10	15	C.	C.	.05
S. . 1	29.38	62	50	56	55	61	58	W	W	16	12	C.	C.	T.
☞	29.83		66	55			77							1.03

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING OCTOBER 8, 1904.

JOHN M. STEELE, surgeon. Ordered to the Naval Station, Baltimore, Md.

R. E. LEDBETTER, passed assistant surgeon. Commissioned passed assistant surgeon, with rank of lieutenant, from Oct. 19, 1903.

J. H. IDEN, passed assistant surgeon. Commissioned passed assistant surgeon, with rank of lieutenant, from May 4, 1904.

W. SEAMAN, R. R. RICHARDSON, F. A. ASSERSON, passed assistant surgeons. Commissioned passed assistant surgeons, with rank of lieutenant, from May 18, 1904.

A. W. BALCH, passed assistant surgeon. Commissioned passed assistant surgeon, with rank of lieutenant, from June 22, 1904.

R. L. SUTTON, assistant surgeon. Ordered to the Naval Hospital, New York, N. Y.

W. N. MCDONELL, assistant surgeon. Ordered to the Naval Museum of Hygiene and Medical School, Washington, D.C.

C. E. STRITE, H. W. SMITH, A. B. CLIFFORD, assistant surgeons. Appointed assistant surgeons, with rank of lieutenant (junior grade), from Sept. 27, 1904.

C. E. STRITE, assistant surgeon. Ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.

D. N. CARPENTER, surgeon. Ordered to the Naval Hospital, New York, N. Y.

R. T. ORVIS, passed assistant surgeon. Detached from the Naval Hospital, New York, N. Y., Oct. 4, and ordered to the "Chattanooga."

R. R. RICHARDSON, passed assistant surgeon. Detached from the "Wabash," and ordered to the Navy Yard, Mare Island, Cal.

H. A. DUNN, assistant surgeon. Detached from the Naval Proving Ground, Indian Head, Md., and ordered to the Naval Hospital, Newport, R. I.

H. W. JUDD, acting assistant surgeon. Ordered to the Naval Proving Ground, Indian Head, Md.

RECENT DEATH.

S. C. MORRILL, M.D., of Concord, N. H., died Oct. 8, at the age of sixty-five. He received his academic education at Brown University, later studied at Harvard Medical School and also at the College of Physicians and Surgeons in New York. He returned to Concord, where he continued in practice up to the time of his death, being for a time associated with his father. He held membership in the New Hampshire Medical Society and was one of the staff of the Margaret Pillsbury Central Hospital. He was also active on the Concord Board of Education, and in general took much interest in educational matters apart from his profession.

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheater of the Boston City Hospital on Oct. 14, from 10 A.M. until 12.30 P.M.: Amputation of leg; Thyroidectomy; Intestinal Suture; Excision of Epithelioma Lip; Ligation of External Carotid; Choledochotomy; Appendectomy; Prostatectomy.

Address.

THE MODERN CONCEPTIONS AND METHODS OF MEDICAL SCIENCE.*

BY W. T. COUNCILMAN, M.D., BOSTON,
Shattuck Professor of Pathological Anatomy, Harvard University.

An acquaintance with present conditions in medicine and with the literature of the past makes us aware of a great change, both in the conceptions of medicine and in the methods by which the conceptions are reached. There has been a great increase of knowledge brought about by investigation and experiment, a realization of the value of knowledge and its acceptance and utilization. Medicine has severed all connection with speculative philosophy and taken its true place among the natural sciences. It has been brought into closer accord with other sciences than ever before and has accepted the methods of science. There are no systems, no schools, no paramount authority; no hypothesis is so firmly held that it is not instantly rejected when it fails to accord with new knowledge. Progress in medicine has gone hand in hand with progress in all departments of knowledge.

Medicine has for its problems the cause, the nature, the prevention, the cure, of disease. It is a branch of biology in that in all of its relations it has to do with living things. The ontological conception of disease as a thing differing from and entering into the organism is no longer held, but disease is regarded as a condition of living things in which there is disharmony of function. The phenomena of life depend upon actions exerted upon living tissue by its surroundings. When the influences exerted lead to forms of activity which differ from and fail to come into accord with the usual activities, whatever produces such an influence is a cause of disease. The causative agencies acting on the tissue produce structural alterations, in consequence of which even the action exerted by the ordinary surroundings may result in disharmony. The terms health and disease both carry with them the conception of activity. Although the abnormality of function is always associated with and depends upon structural alteration there may be extensive structural alteration which is so repaired or compensated for that it does not result in disease.

In the history of the advance of knowledge in medicine we find two methods by which knowledge has been sought. In one the endeavor has been made to form conceptions of the objects studied by means of impressions conveyed by the senses. Great advances have always followed the discovery of methods and instruments by means of which the territory of investigation has been extended. The inquiry does not stop with the mere description of the conceptions derived from the sense impressions, but an effort is made to correlate them, to ascertain preceding conditions, and the meaning or idea involved. When the inquiry passes beyond the immediate investigation, an ideal conception of the nature, the interrelation, the cause or the result of the condition studied, an hypothesis may be formed based on experience and analogy. The hypothesis must be tested by further observation under natural conditions and by the experiment which involves observation under known and controlled conditions. When the hypothesis has been so tested and found to hold good in all cases under the same conditions it can be used as a basis from which new questions may arise.

The other method is by speculation. By a wide and illegitimate use of analogy, conceptions are formed and projected into the objects instead of being derived from the sense impressions. A tendency to speculation is inherent in the nature of man. Confronted always with the unknown which has such enormous proportions compared with the known, and so much of which seems to be removed from the possibility of actual investigation, man is led to attempt to answer the questions which the unknown thrusts upon him by means of the imagination. As knowledge becomes deeper and more extended speculation tends to become more confined. True philosophy aims at a complete understanding of the causal relation of all processes in nature and of man's relation to these processes. Disease, as one of the most important conditions in nature affecting man in all of his relations has always had an important place in philosophy. All the systems of philosophy in the past from Plato down have embraced speculations concerning disease. The true ends of philosophy cannot be reached by speculation but by the use of all the material for observation given by the natural sciences, and a philosophical system will contain just so much truth as there is natural science in it. Nature seems to delight in refuting all conceptions of her processes which are not based on sense impressions.

The progress of knowledge by these two methods has been the same in all sciences as in medicine, but it is more easily followed in medicine because of the important place which its subject, disease, has always held in the thoughts of man. It is possible to trace the past in the conditions of the present. In the earliest period of medicine, before there were any records of the study of the phenomena of disease and any differentiation of disease, disease was regarded as the visitation of the wrath of offended deities, and the surest mode of its relief was the propitiation of the deity by supplications and offerings. Such beliefs are still held, or at least practices which were based on such beliefs are continued. In almost all countries at the present time it is the custom to offer supplications that the disease of an important individual may be removed by divine interposition. It is true that such prayers may be a part of past tradition or a part of the discipline of a religious system, but undoubtedly their efficacy is believed in by many. Disease has played an important role in systems of religion, and the teachers of the system who had most fully embraced its tenets were supposed to be the most efficacious in removing disease.

* Read before the Section in Medicine of the Congress of Arts and Sciences at St. Louis, Sept., 1904.

Christian science is only one of a great number of religious systems held to-day in which treatment of disease forms an important part of the cult. In the past there have been systems of medicine which gave explanations of all phenomena, and the system being perfect the phenomena were removed from further investigation. Homeopathy is the most prominent survivor of such speculative systems.

Speculation has undoubtedly been fostered by systems of religion founded on what was accepted as supernatural revelation. Revelation which sufficed for the explanation of phenomena at the time when it was given becomes firmly and inseparably blended with speculation when it must be expanded to meet a wider range of phenomena. Knowledge cannot be diffused, accepted, or utilized beyond the general development of culture. Any general influence which can be exerted on the people, turning thought into new directions, giving new subjects and proper methods, is of great importance. Darwin by substituting a rational and easily comprehended hypothesis, based on observation and experiment, with a clear statement of the method by which the hypothesis was formed, for a revelation which did not suffice and which could not be twisted to conform to what was of general and accepted knowledge, exerted probably the greatest influence on general scientific progress in the last century. Medicine like all other sciences has felt its vivifying influence.

One of the greatest changes which has taken place in the last century is the general acceptance of the idea that medicine is a natural science in which knowledge must be sought by the methods of science, namely, observation and experiment, and that disease is the result of injurious conditions acting upon the tissues. A great part of the mystery surrounding disease has been removed by knowledge of the conditions which give rise to it with the further knowledge that it is possible to prevent disease by removing such conditions. Even though some may still believe that an epidemic of typhoid fever is an act of God, they must see that the action is exerted by means of a defective water supply, and that the surest way of removing the epidemic is not by supplication but by purifying the water. At no time in the world's history has the importance of knowledge been so fully recognized as at present. People see the application of knowledge in the arts, and that improvement in the processes involved is directly dependent upon increased knowledge of the processes. There is a closer union between science and art than has ever been before. We see the influence of the appreciation of knowledge in medicine in the general acceptance of the idea that the hospital in addition to taking care of the sick shall furnish facilities for the investigation of disease, in the creation of institutes devoted to the furtherance of medical knowledge and in endowments in universities to the same end.

A brief glance at some of the more important periods in medical history will enable us to trace the influence and the results of the two methods by which knowledge has been sought. The history of medicine begins with Hippocrates. Before him there were only superstition and tradition without systematic observation and description. Hippocrates described accurately the results of his study of the phenomena of disease, classified the phenomena and based his methods of treatment on his observations. The influence of Greek philosophy made him attempt to explain the phenomena, by the assumption of a force residing in and presiding over the body. The contemporaries and successors of Hippocrates, who regarded him as a god and his conclusions as unfailing axioms, entirely neglected the methods by which he arrived at them. It must ever remain a source of wonder that the light which burst upon medicine with the advent of Hippocrates should so soon have passed into darkness. The Greeks chose rather to speculate on the meaning of phenomena than to investigate them. Galen, next to Hippocrates, had the greatest influence on medicine, an influence which was dominant for more than fourteen hundred years. Galen mastered all the knowledge and traditions of medicine at his time and made important contributions to anatomy and physiology. He was the first to introduce the experimental method into medicine, and gave a firm foundation to nerve physiology by observing the paralysis of certain muscles after section of the nerves. A voluminous writer as well as investigator, Galen created a complete system of medicine which remained as authority until men became bold enough to throw over authority when it did not conform with what could be learned from investigation. The stagnation and decline in medicine which followed Galen and continued during the Middle Ages was due to the dominance of a dogmatic religion in lands in which the general culture of the people should have given the conditions for knowledge to increase. The Church regarded its dogma as sufficient, and all inquiry, all free activity of men's minds, was prohibited. Dogma based on supposed revelation sufficed. There was some attempt at progress made by the Arabians, but their most important contribution was the preservation of the old learning. Even the period of Renaissance passed with little or no influence on medicine, for activity was exclusively turned into channels in which dogma could not be disturbed.

Three circumstances served to bring about a new era in the progress of knowledge in which medicine shared. The discovery of the art of printing, by which knowledge became diffused and more exact by the substitution of record for tradition, the discovery of America with the stimulation which this gave to thought and imagination, and the Reformation which gave freedom to thought, removed the weight of authority and allowed investigation. The reform in medicine was introduced in Europe by Paracelsus whose work was chiefly the overthrow of the Galen system which had sufficed and under which investigation was not possible. Progress

in the new reform was more active in England than in the land of its birth. This was due to the freedom from war, the greater freedom of the people in all ways and to the work of Francis Bacon, who for the first time showed clearly the methods by which knowledge must be sought. With few exceptions English medicine has remained true to the precepts of Bacon, that knowledge increases by the observation of things with the proper utilization of past observations. There has been an almost continuous line of great physicians in England who have enriched medical knowledge by investigation and who remained free from speculation. The contributions which such men as Harvey, Sydenham, Hunter and Bright have made remain and have served as bases from which knowledge has grown. The theories which were founded upon their work have passed without influence. That there came a time in England when medical investigation was greatly surpassed in other countries is to be attributed to the introduction of methods of investigation which could not be utilized in England. It was the introduction of the laboratory with the facilities for, and the systematization of, medical investigation which gave medicine on the continent its ascendancy. Young men, at an age when authority has the least weight, and before there was opportunity given them for the investigation of the clinical phenomena of disease, found in the laboratory opportunity for investigation, and had small questions placed before them which could be solved. The laboratory gave the workers scientific methods which formed the basis and gave the direction of further work in the clinic. With the laboratory came also a division of labor which allowed certain men to devote their time to investigation and teaching. Ambition was stimulated for advance and the further career was made dependent upon the ability for investigation.

It is interesting to follow a wave of speculation in medicine which reached its acme in Germany in the early part of the nineteenth century. In the period following the Reformation the most striking figure in medicine was Albrecht v. Haller, a man who as investigator and clear thinker has been equalled by few. Haller recognized the important fact that life was a property inherent in the tissues and manifesting itself by sensation and movement. On the work of Haller is founded the system of Brown who though a Scotchman can be regarded as the forerunner of the German *Natur-Philosophie* in medicine. The system of Brown is founded on the principle which he states clearly that the living animal body is distinguished from the dead and from all lifeless matter by the capacity for excitation by external influences. The difference between health and disease lies in the degree of irritability of the tissues. He divided disease into the sthenic and asthenic types according to the degree of irritability developed by the excitant, and the treatment of disease was based on this. In the hands of Brown's pupils and successors treatment of disease was productive of great harm. The theory of Brown found ready acceptance in Germany, not only by physicians but by a group of men who sought to explain nature by the creation of laws. The law once made was regarded as more correct than the observation. Schelling, who was the foremost figure in this philosophy, sought to give a representation of all the phenomena in nature, to develop the interrelation of the phenomena, to show the action of natural laws in all bodies, and that these laws originated in a common point and were characterized as an advancing series of higher phases of development of matter. Not only was it impossible to construct a system of the world from the knowledge of nature at that time, and it probably never will be possible, but Schelling very imperfectly utilized what knowledge there was. This *Natur-Philosophie* dominated medicine in Germany during the first quarter of the nineteenth century. It is expressed to a greater or less extent in all medical writing. The most gifted men could not entirely withdraw from its influence. Under it medicine was not a science following the methods of observation and experiment; investigation was banished from the clinic and laboratory and found its place at the writing desk. Hartmann says that one reason why the *Natur-Philosophie* found such ready acceptance was the ease with which it was possible by its aid to become famous as a writer. The young physician found it no longer necessary to become acquainted with the material for study by toilsome investigation; he only needed the philosophical forms of expression and could apply these to what he knew or did not know of medicine. Many systems of medicine were founded which purported to give a complete explanation of all the phenomena of disease. Of all these systems the one which has endured the longest was almost the most fantastic in its structure. The success of the system of Hahnemann or homeopathy is in the first place due to the fact that under it the treatment of disease represented a great advance as compared with treatment under the systems of Brown and Rasori. However zealous the exponents of a system may be it will find its condemnation from those who suffer most from it. The system as presented by Hahnemann was complete; it offered names and seeming explanations for all conditions. The practice of the medical art under the system was easy and involved no toilsome investigations. It was put forth at an early period of the *Natur-Philosophie* and was carried upward on the tidal wave which swept through Germany. It at once found great favor with the people and was taken up by great numbers of physicians. In the course of time the adherents of the system have become divided into three camps. In one its principles have been extended far beyond the conception of Hahnemann in that the products of disease have been used as remedial agents; a second have remained true to the principles of the founder, and a third, comprising a large number of intelligent physicians, hold only to the name. Under the *Natur-Philosophie* combinations between religion and

medicine arose, and a system which represented a return to medieval mysticism was formed by Windischmann and Ringseis. In this it was taught that the causes of disease are immaterial and not to be sought for, since disease merely represents discord between body and soul.

Such a remarkable phenomenon as the dominance of the speculation which was a part of the *Natur-Philosophie* must be regarded as a part of the romantic movement which swept through Germany and found its chief expression in poetry. All barriers to idealism and speculation were cast aside. The movement was a part of the awakening of Germany to a new national life. The great questions of the time involving political liberty and even national existence were absorbing. Under such circumstances only a few could turn from the pressure of such large questions to the narrow field of scientific investigation. It is remarkable that the great awakening in France which preceded it should have been characterized by the opposite tendencies. During this period of speculation in Germany valuable contributions to knowledge were continually being made in anatomy and physiology. The chief exponents of the *Natur-Philosophie* were physicians who had to do with the clinical phenomena of disease. Speculation was fostered because the methods of gaining information from the study of disease were at the time so meagre that observation was restricted. So confirmed was the habit of speculation that each new discovery in anatomy and physiology, instead of serving as a basis for investigation, became food for new speculation.

It is possible to see the influence of the *Natur-Philosophie* on its greatest opponent, Rudolf Virchow. No one more clearly laid down the methods of scientific investigation than did Virchow in the opening articles of his *Archives*. He was a born investigator and made valuable contributions to knowledge in every department of medicine. The protocols of his autopsies are models of full and accurate descriptions of observations. He made important additions to the technic and methods of work by the use of which new knowledge was gained. He was a great teacher as well as investigator, and men trained in his methods are among the most famous in medicine. It is difficult to find in the history of modern medicine any one who can be compared with Virchow in the contributions made to medical knowledge and in the influence which he exerted. He substituted for the ontological conception of disease, which was prevalent in Germany at that time, the conception which we adopt to-day, that it consists in life under altered conditions. This is not an explanation but a simple way of stating the summation of the most obvious phenomena. He created the cell theory of disease which, though it represented an enormous advance over prevalent theories and has been most stimulating to investigation, can no more be held in its entirety as Virchow gave it than any of the systems it supplanted. Unlike the other systems it did not pretend to be all-satisfying and all-explaining. The cell theory of disease should be regarded as an hypothesis fully justified in being formed from the knowledge at that time available. In Virchow's theory of inflammation we see the great value of an hypothesis which though gradually proven incorrect by continued observations has been most stimulating to investigation. It is interesting to see the contention which has been excited by theory. No one contends for the acceptance of an observation but is content to leave this for time, but the contention is for the conception based on the observation and the theory formed from the conceptions. Virchow properly opposed the ontological conception of disease, but this led him also to oppose the proof given that certain diseases which he regarded as due to the action of general causes were due to parasites. Virchow appeared in medicine at the time when *Natur-Philosophie*, though seemingly dominant in Germany, was really far advanced in decline, and his mighty blows were delivered against a feeble body. It was the knowledge of French and English medicine, where the advance had been by investigation, the increase in knowledge in all the natural sciences giving too much to be covered by any system, which gave the death blow to this period of speculation in medicine.

It is possible now to see the effect of this period of unrestricted imagination on medicine. It is true that it inhibited progress by restricting observation and experiment, that it substituted theory for knowledge, and found satisfaction in empty phrases and juggling with terms. But it gave birth to fruitful stimulation and opened wide and distant vistas which science has utilized. The excitation of the imagination, provided the imagination be controlled and theories be recognized as theories, is most useful in science. Without the imagination, without the tendency to seek for explanations of phenomena, there would be no progress. There is only danger in the failure to recognize the true relation of the hypothesis and in attempting to progress by adding hypotheses. There was but little progress in the period, but progress resulted from the stimulation which the period gave and from the reaction which followed it. Although as playing a great part and affecting an entire people such a movement has passed and will probably not return, we constantly see the same tendencies. The medical systems often connected with religion which are constantly arising in all countries, and especially in this, the attempt to form theories in explanation of the unknown, are due to the same mental states which produced the *Natur-Philosophie*. They arise, have a ready following composed of birds of passage resting temporarily on any bough provided, and disappear without making any real impression. How completely the period of the *Natur-Philosophie* has passed in the country of the creation is seen in the history of medicine in Germany for the last fifty years. By the adoption of scientific methods, by the fostering influence of the government which provided facilities for research, and by a system which gave reward for investigation, Germany has become the leader of the world.

At no time in the world's history was there such rapid advance, such a complete transformation in methods, such an array of great men in all the departments of medicine as in France following the Revolution. The foremost of the men in this school in France was Bichat. He undertook the gigantic task of creating for medicine a solid foundation derived from the study of objects and from experiments. He carried the anatomical study of disease further than ever before, endeavoring to ascertain not only the lesions in the organs but in the tissues which compose them. The relation between the anatomical lesions and disorders of function, he says, must be studied by experiment. The work of Magendie in physiology was hardly less important than that of Bichat in pathology. Physiology had suffered from the theory of vital force which as a seeming explanation weighed upon it as an incubus, opposing investigation. He claimed for physiology the same methods as in physics and chemistry, saying that the carefully conducted experiment is alone decisive in testing the conclusions formed from observation of phenomena. The work of Magendie had full recognition in France and he was followed by Claude Bernard and Brown Séquard who further developed his methods. Corvisart, Andral, Louis, Rayer and Cruveilhier were among the most brilliant men in the new school which was founded by Bichat and Magendie. Corvisart and Laennec deserve especial mention, in that the former brought to general knowledge the method of percussion of Auenbrugger which had been forgotten, and the latter introduced and further developed the methods of auscultation.

In the advance of science new technical methods of investigation play a most important rôle. The technical method enables the observation to extend further and more deeply. Virchow has said that the introduction of the microscope into medical research enabled us to approach several hundred times nearer disease than before. The microscope introduced a new era in the study of disease; it came into general use when the study of gross pathology in the absence of new questions had almost reached its limit. It gave more correct ideas of disease by increasing the powers of observation, it overthrew at once many theories and gave new points of view and new questions from which further observation could proceed. Every improvement in the microscope by which its efficiency is increased has the same influence. The knowledge of the influence of bacteria in disease is due in the first instance to the improvement of the microscope, and in the second to the discovery by Koch of methods of cultivation by means of which the individual species can be studied. Until this was possible our knowledge of bacteria was inexact and their causative relation to disease only an hypothesis. The development of knowledge of the minute structure of cells and tissues is principally due to the use of methods of staining which started with the simple carmine stain of Gerlach. In clinical medicine the introduction of the microscope, the thermometer, the methods of chemical investigation, the blood counter, the x-ray, have all led to a closer insight into disease and the substitution of knowledge for conjecture. There is a further indirect advantage which comes from the use of instruments of precision in investigating phenomena, in that the continued use of the methods, the constant seeking for exact knowledge of conditions, removes the tendency towards speculation.

The brilliant results which have been reached in surgery, changing this from the most despised to the leading branch of medicine, show the advantage of methods which are founded on knowledge. Surgery was despised in the period in medicine in which speculation was in the ascendancy, when the answers to its problems were sought in the study rather than at the bedside and in the laboratory. The art of surgery has been dependent upon direct observation of disease, and its remedial measures were applied to the disease as revealed by sense impressions. Theories and systems in medicine have come rather from internal medicine in which field the diseased conditions were not so susceptible to study as things. The broken leg, however, is revealed by sight and touch; the tumor is an object. Moreover, the training in the anatomical and other laboratories, so essential for a surgeon, gave the knowledge and the methods, and the manual skill to make them effective. At an early period surgery had recourse to animal experimentation, for the animal body offered the readiest means for testing new devices. In surgery new knowledge has been readily accepted and utilized. The first demonstration of anesthesia was made under the auspices of surgery, and the surgeon was the first to accept and apply the knowledge that infection is due to the action of living organisms. By the use of anesthesia and of measures of preventing infection, surgery has been extended into fields formerly supposed not to be open to the exercise of its art. Medicine owes a debt to surgery, for not only what it has accomplished but for holding to proper methods and demonstrating their importance. The less advance in modes of treating disease which internal medicine has made, compared with that made in surgery, is to be attributed to the difficulty of obtaining definite knowledge of the conditions of disease in internal organs.

That the lack of power is due primarily to lack of knowledge is shown by the fact that for diphtheria, formerly one of the most dreaded, now probably the best known, of diseases, there is a remedy which leaves little to be desired. The production of antitoxin is the greatest triumph of scientific medicine, and is due to knowledge obtained by the application of scientific methods to the study of a disease which gave unusual opportunities for investigation. It points out what may be accomplished in the future by not seeking for analogies between other diseases and diphtheria but by pursuing the same methods.

Modern therapeutics is guided by two principles in each of which efficiency is dependent upon

knowledge of disease. In the most important, the remedial agent has a specific action on the cause of disease, either destroying it or opposing its action. In the second, the remedial agents are used not with the view of exerting any specific action against the cause of disease nor even in assisting in the restoration of the tissue which has been injured but with the view of restoring function. Any agent acting as a cause of disease produces injury of the tissue, and the effect of this is alteration or diminution or destruction of function. There is a close interrelation of function, that of one organ depending upon the others. The effect of the alteration of function is seen in the supervention of phenomena which differ from the ordinary. The effect of impaired function may be remedied by supplying the body with some substance which was formed by the impaired organ. Substances directly derived from glands in the animal body, such as thyroid and pancreatic extract, may be supplied. Or the functional activity of an organ may be increased by direct stimulation or increasing its blood supply. Or the function of some other organ nearly related to the organ affected may, by increased function, be caused to supply the deficiency. Therapeutics acts either as a guard against or as a caretaker of the body in disease. Its greatest triumphs are in prevention. When the injury has once been produced its effects are minimized by the capacity of the body to adapt itself to new conditions. There is a third use in therapeutics in the case in which the disease produces so much pain and discomfort that the remedial agent is used for the purpose of diminishing the effect of sense impression on the central nervous system. It is clear how complicated the questions are and how much greater is the task presented to the physician than to the surgeon. The surgeon acts directly, either adjusting parts which are deranged or by removing tissue which is diseased. The study of medical literature shows the mistakes and follies which have been and are being perpetrated in therapeutics. The more obscure the disease the greater the number of remedies; the more ignorant the practitioner the more confidence that certain drugs will act as remedies in all diseases. Each year has served to discard some remedy considered infallible and to substitute for it another equally infallible. The discontent of the general public with such therapeutics is shown in the success of charlatans who advertise nostrums for the cure of all diseases. It is just as easy for them to obtain certificates of cures by the nostrums as it is for the practitioner to become convinced of cures effected by certain favorite drugs.

The greater knowledge of the infectious diseases which has come with their experimental study has especially served to place therapeutics upon a proper basis. It has become apparent that many diseases are self-limited and tend to recover under any treatment provided this be not too injurious, and that the medical art can be more successfully exerted in preventing disease than in its cure. The first effect of increased knowledge of disease was to produce a feeling of powerlessness in the face of it, followed by a nihilism in therapeutics which was as much to be deplored as overconfidence for it acted as a bar to progress. This nihilism was a prominent feature of the Vienna school in the sixth decade of the past century. The science of therapeutics as we find it to-day is founded on experimental pharmacology and pathology. In experimental pharmacology the action of drugs on the healthy animal is investigated. It is sought to discover the mode of entry of the drug into the tissues, the mode of exertion, the changes the drug undergoes while in the body and the changes in structure and function it produces. The action of the drug may differ in different animal species. Knowledge of the pathology of disease shows in what part changes are produced by the causative agent, the nature of the changes, and the effect of these changes on function. The determination of what is taking place in the body in disease is the most important question in medicine to-day. For its answer all the resources of science must be brought to bear. The subject is rendered more complicated by the fact that we are not dealing with a fixed but with a variable quantity. Age, heredity, temperament and social environment must all be considered. We cannot say except with wide limitations what changes and variation in function will be produced by the action of certain conditions. With the knowledge of the effect of the drug on the healthy body, and the knowledge of what changes are being produced in disease, and the effect of which we wish to minimize, an intelligent experiment may be made. Previous experimentation on animals should deprive the experiment of all danger.

Another change which has become apparent is the greater specialization, not only in the exercise of the medical art but in investigation. All increase of knowledge must bring with it specialization, for with the enlargement of the field comes the impossibility of its control by one individual. Specialization has both advantages and disadvantages. The advantages are that investigations are more easily carried out by the simplification of the questions, and the familiarity with technical methods. Methods of investigation have become so complicated that the necessary skill can only be attained by the constant exercise of methods only applicable in a very narrow field, and an investigator of exceptional ability in one line of work may be powerless in another. A man may profitably devote his entire energies to the study of the changes in nerve cells in disease, or may confine himself to the study of a single species of bacteria. With the enormous increase in medical literature there has come specialization in this, and certain journals are devoted to special subjects and are read only by those working in the field covered. The first differentiation came in the separation of anatomy, physiology and pathology from practical medicine; that is, the medicine concerned with the exercise of the art. The separa-

tion was a natural one, for not only could progress be more rapid, but the subjects could be better taught by one who had the knowledge which came from his own investigations. It is no longer possible for a single individual to control the knowledge in any of these primary subdivisions. The most obvious disadvantage in specialization is the loss of the more general aspects of questions. The large questions become broken up into smaller, and the smaller questions become again leading questions to be again broken up. It is also felt that the knowledge gained in such special investigations may not be of a character which can be utilized in the treatment of disease. But few of the questions which arise and form the basis for investigation come from the clinic, and they apparently have only the most remote relation to the problems of disease. The investigator very properly feels that his investigations are justified in that they form contributions to general knowledge, and whether or not the results are directly applicable to the treatment of disease does not disturb him. There was an error perpetrated in not giving to those devoted to the study of the clinical aspect of disease the same opportunity to devote themselves to research, to answer the question which came from the phenomena of disease, which was given to anatomy, physiology and pathology. Clinical medicine, the study of the problems of disease coming from the bedside, must have the same opportunity, and must advance by the use of the same methods as physiology and anatomy. Clinical medicine is behind the special departments in the contributions it has made to knowledge, in the methods by which it seeks to advance, and in the efficiency of teaching. Provision must be made in the universities which will enable men in the clinical departments to devote themselves to research teaching, and laboratories must be provided for such research. Only one who is himself an investigator can direct investigation by recognizing and properly stating the questions. There need be no fear that the knowledge which comes from investigation will not be utilized. In what way may not be apparent at the time; often knowledge which seemed furthest removed from utility has become the most important. That knowledge is power, and that it is the only power is an accepted axiom.

Anatomy and physiology originally arising from human medicine for the furtherance of knowledge which could be applied to the treatment of disease in man have long outgrown such limitations. Both have become comparative. Physiology undertakes the study of the processes taking place in living things, anatomy their form and structure. The comparative view has more slowly entered into pathology, for this has been more closely in contact with clinical medicine, and most of the questions for investigation have arisen in connection with the diseases of man. Disease is found in every living thing, in all animal and plant life. The phenomena of disease must differ according to the conditions peculiar to the organism. Strictly speaking, there can be little similarity between the phenomena of disease in a plant and in an animal. The functions which are destroyed or altered by disease are too dissimilar. But this is not true when we study the closer details of disease. In both, changes are produced, and the changes affect function. We can study unicellular organism directly under the microscope, see the changes which are being produced by injurious conditions and the effects of the changes. Knowledge derived from such study may be said to be the basis of our conception of inflammation. The studies of plant diseases have been almost entirely directed from the economic side. The economic results which have come from this study by enabling the prevention of disease are almost incalculable. General medicine has gained by this study a greater knowledge of parasites, their mode of action and the means by which the organism is protected against them. That the knowledge has been so rapidly gained is due to the facilities for investigation and experimentation. Plant experimentation has never given offense. It should be regarded on the whole as very much better that the study of plant disease has been directed from the economic side, for progress has been more rapid; but there would be advantage in the closer association of plant and animal pathology and the extension to plant diseases of questions coming from disease in man. Careful study of diseases in animals has been chiefly directed to the infectious diseases, and especially to those artificially produced. The questions have been chiefly those concerned with the parasitic cause of disease and the mode of action of the parasites. The more obscure diseases of animals have attracted but little attention, and only from the economic side. The phenomena of disease in the higher animals have much similarity to the phenomena of disease in man, and in certain aspects the diseases of animals are more capable of investigation. Diseases are found in animals which are similar to the most obscure diseases in man. Our ignorance of these diseases in man is due to their complexity and the difficulties of investigation. To their understanding chemical and physical methods are necessary, and some of these methods cannot be carried out for they may be harmful to the individual. In animals we have the advantage that the disease can be interrupted at any stage and the conditions studied at this stage. We know the infectious diseases of animals chiefly by their experimental production. There has been but little study of these diseases under natural conditions and much knowledge can be gained by the mode and conditions predisposing to infection. Questions of heredity have an important bearing on disease. The susceptibility of animals to disease varies. Common experience has shown in man, also, that under circumstances apparently the same certain individuals will acquire diseases, others remain exempt. There is also foundation for the belief that susceptibility for certain infectious diseases is inherited and in other diseases inherited sus-

ceptibility is beyond doubt. The most striking recent discovery in medicine is that the blood serum contains many complex substances. Some of them play an important rôle in the animal economy; for others we can as yet discern no purpose, and our knowledge of these substances is chiefly confined to their effects, but it has recently been found possible to isolate one substance in pure form with a known chemical composition. While these substances may serve an important rôle in protecting the body against disease they may act in the opposite way by providing a means by which injurious substances are brought in contact with cells. Whether chemical variation may not arise, be inherited and play an important part in disease susceptibility is an important question to be answered by comparative medicine. For the purpose of such investigation an animal clinic is necessary which should be provided with thorough facilities for the study of disease. The questions for solution should come both from comparative medicine and from the clinic of human disease.

Comparative medicine is intimately associated with experimental medicine. There can be no contention as to the relative advantages of observation and experiment. The experiment is only observation under simple and known conditions, and supplements observation under the more complicated natural conditions. In the experiment it is possible to divide questions into their simpler components and make each the subject of experiment. In experimental medicine, just as in the animal clinic, the questions for solution should come from both comparative medicine and the human clinic. The most brilliant results in experimental medicine have come from the study of the infectious diseases. Knowledge of these diseases stands in direct relation to the possibility of their experimental production. It is true that we have not been able to produce in animals many of the diseases which are found in man. Experimental medicine is comparatively new and the number of animal species experimented with has not been large. It has recently been found possible to produce syphilis in the chimpanzee, and there is every reason to hope that this will lead to knowledge of the nature of this most obscure disease. Questions concerning the circulation and respiration in disease which are closely related to physics will find their answer in experimental medicine. The opponents of animal experimentation should remember that the greater our knowledge of disease which comes in this way, the further will disease in man be removed from experiment. Before our present knowledge of diphtheria, tuberculosis, tetanus, and anthrax, all treatment of these diseases was experimental. In certain cases experiments must be carried out in human beings, and even when the experiments may have a fatal termination. Such experiments will only be resorted to when this forms the only method of obtaining knowledge of the highest importance, and the subjects of the experiment must be adults who submit with full knowledge of the possible consequences. Let us give all honor to the men who devised and the brave men who submitted to an experiment, the knowledge obtained from which has placed yellow fever in the list of preventable diseases.

There has been in the past too wide a separation between the public and the medical profession. The public has derived its medical information chiefly through the newspapers, and the information so given has been sensational and unreliable. Without correct information of the problems which face the medical profession, and of the methods by which these problems are being solved, neither the sympathy nor co-operation of the public may be secured. Active or passive opposition may be encountered. There is evidence that this is being slowly changed. The medicine of the romance is not so fantastic as it was formerly. The general information in biology, human anatomy, and physiology necessary for any appreciation of medicine is being imparted by the schools. Many of the popular magazines contain admirable articles on disease. The stories of such diseases as malaria and yellow fever have actual fascination. The medical education of the public is also furthered by the work of boards of health in the control of infectious diseases. The public is slowly but none the less surely learning that disease is not a mysterious entity dwelling like a devil in the body, to be driven out by the use of some equally mysterious agent, but a condition of life which can be guarded against. The public is not slow in the appreciation of the results of the work of boards of health, and is willing to make provision for their work.

Medical education, the training of men to exercise the art of medicine, has been revolutionized in the past twenty-five years. The most marked change has been in the substitution of object study for the didactic lecture. The didactic lecture is still used, though not with the idea of imparting knowledge but of showing the interrelation of knowledge coming from object teaching. The successful practice of medicine depends more than ever before upon the use of methods which give accurate knowledge of the condition of the sick individual, and training in the exercise of these methods is the most important part of medical education. It is certainly of importance that the student should learn the structure of the body, the functions of the different organs, and the changes which organs and functions undergo in disease. The knowledge acquired will be constantly used in solving the problems presented in the practice of medicine. While this is true a great part of the value of these studies consists in the discipline which laboratory study enforces. In the laboratory the student learns to acquire conceptions of objects and of the activities taking place in them, by means of sense impressions, and to use and appreciate methods by means of which the field of investigation is extended. He learns to approach problems from the scientific point of view. Progress and success in medicine are directly dependent upon the habit of investiga-

tion. Medicine is not and probably will not be an exact science with definite laws by the application of which the exact sequence of phenomena can be foretold. Every case of disease is a problem, and on the knowledge acquired from investigation successful treatment of the individual depends. Science demands to know, and methods by which knowledge can be obtained are of supreme importance. Methods of obtaining knowledge have been widely extended in clinical investigation. Every year sees the discovery of new methods. There should be, and with the foremost men there is, no distinction between the clinic and the laboratory. In both knowledge is sought by the use of the senses, and methods of investigation have a supreme importance. The laboratory discipline can be given just as well in the clinic as in the other laboratories, with the advantage that the methods of the clinic are the methods which are used in the practice of medicine, and facility in methods can only be acquired by continual exercise. It is evident, however, that the laboratories and clinics should only be conducted by men who themselves know and fully appreciate the importance of methods. It is probable that in the medical education of the future there will be a restriction of the laboratory training in anatomy, physiology and pathology, and an extension of the training in the methods of the clinical laboratory.

Original Articles.

HEART COMPLICATIONS IN DIPHTHERIA. A CLINICAL STUDY OF 946 CASES.

BY FRANKLIN W. WHITE, M.D., BOSTON,
Assistant in Theory and Practice, Harvard Medical School; Physician to Out Patients at the Boston City Hospital and at the Infants' Hospital.

AND HOWARD H. SMITH, M.D., BOSTON,
Late Assistant Resident Physician, South Department, Boston City Hospital.

THIS paper consists of a clinical study of nearly one thousand cases of diphtheria treated at the Boston City Hospital, South Department, during one year. We have studied mainly the condition of the heart to determine the character and frequency of heart lesions and their practical importance in prognosis and treatment. We shall present some general statistics of all the cases, taking up certain cardiac signs and symptoms which were common to large numbers of the patients, and also a special consideration of a small group of cases in which the heart symptoms were especially prominent and important.

Age. — The patients, naturally, were mostly children; their ages were as follows:

Age.	
Up to 1 year	57
From 1 to 5 years	331
From 5 to 10 years	248
From 10 to 16 years	109
Over 16 years	201

About 5% were less than one year, nearly 40% less than five years and about 70% less than ten years old.

Sex. — The sexes were almost equally represented.

Severity. — In about one quarter of the cases the course was mild, about one half were moderately ill and in one quarter the illness was severe. Over one half of the severe cases proved fatal, namely 132. This classification is based on the amount of toxemia, the amount of membrane and the presence of complications. The following table gives the number and per cent of deaths at different ages:

Whole no. of cases.		No. of deaths.	% of deaths.
1 year and under	57	19	33
1 to 5 years	331	43	13
5 to 10 years	248	20	8
10 to 16 years	109	6	5
Over 16 years	201	6	3

About one half of these patients died of bronchopneumonia, usually following operative interference, such as intubation or tracheotomy. About one fourth died of heart complications. Of the remaining one quarter, the majority died of early severe toxemia and a few of asphyxia, or late paralysis. These facts contradict Villy's statement that the majority of fatal cases of diphtheria die on account of heart complications.

About 50% of the patients were discharged from the hospital within four weeks, about 40% between the fourth and seventh weeks, only 10% remained longer than seven weeks. The length of the stay in the hospital was governed by the presence of diphtheria bacilli in the throat as well as by the severity of the illness.

BEGINNING OF TREATMENT.

The hospital patients come largely from the poorer classes where the illness is likely to be neglected at the outset and proper treatment deferred. In most of the cases treatment with antitoxin was not begun until the second or third day of the illness, and it is important to note that the large majority (at least two thirds) of the severe and fatal cases averaged four or five or more days without treatment with antitoxin.

CARDIAC SIGNS AND SYMPTOMS.

The physical signs of a greater or less degree of cardiac disturbance, such as murmurs, and rapid and irregular pulse, were very common. Ordinary symptoms of heart disease, such as dyspnea, dropsy, cyanosis and hemorrhage, were not common. We will take up the physical signs first on account of their far greater frequency.

PULSE RATE.

This table shows the relation between maximum pulse rates and mortality:

Pulse rate.	No. of cases.	No. of deaths.	% of deaths.
100 or under	127	4	3
100 to 120	114	11	9
120 to 140	378	19	5
140 to 160	226	33	14
Over 160	98	49	50

About 65% of our cases had a maximum pulse rate of less than one hundred and forty, and the mortality among these was about 5%. In general, the higher the pulse rate, the greater the mortality, as would naturally be expected. About 20% of the cases with pulse rate of one hundred and forty or over were fatal. It is, however, a fact, that a prognosis from the pulse rate alone is of little value, because so much depends on the age of the patient. The pulse rate at discharge in cases which were not fatal was 100 or less in about 68%, between 100 and 120 in about 31%, and over 140 in five cases, or less than 1%.

Irregularity of Pulse. — This was noted in nearly 60% of our cases, and the actual number of patients having an irregular pulse at any time may be even larger than this. It was frequently observed in severe, moderate and even in mild cases. It was observed at the entrance to the hospital in about 12% of the patients, often combined with cardiac murmurs. In the majority of cases its time of onset was one or two weeks after entrance, and in about 35% of the cases the heart was irregular at discharge. In about 1% of the patients it was the first sign of cardiac disturbance observed.

It was very variable in its appearance and duration. The rhythm would often change within half an hour from marked irregularity to perfect regularity, or the reverse. The duration varied greatly, some patients had only short intervals of irregularity scattered through several days, others had an irregularity which was constant for several weeks; when the patient's condition improved periods of regularity appeared or became longer, but excitement or exertion would make the pulse very irregular and rapid again. Irregular rhythm was most frequently observed in the severe and fatal cases, but Romberg's statement that irregular pulse is in general a sign of great weakness and approaching death is certainly not true.

This table gives the number of cases at different ages with irregular pulse:

Ages	1 to 5	5 to 10	10 to 16	Over 16 years.
Total No. of cases . .	332	248	109	201
Cases with irregularity,	164	189	81	66
% irregular	49	76	72	33

The statement of Villy that irregularity of the heart is much more frequent in young patients is borne out by our statistics, though we have not found as great a difference between children and adults as he did. Irregularity of the pulse was found in two thirds of the cases under sixteen years, but in only one third above that age. We have no explanation for the fact that irregularity of the pulse was less frequently observed in children under five than in older children, except the greater difficulty in determining the pulse rhythm at that age.

CARDIAC MURMURS.

One of the most striking features of our study and the one in which it differs from most published records is the very large number of patients who were found to have heart murmurs.

The following table shows the number of patients who had heart murmurs during their stay in the hospital and at discharge, and the position of these murmurs:

No. of patients with murmurs at any time:	
At apex and base	681
At apex	172
At base	25
Total number of patients with murmurs . . .	878
Total number of patients without murmurs . .	53
No. of patients with murmurs at discharge:	
At apex and base	433
At apex	169
At base	90
Total number of patients with murmurs at discharge	692

All the murmurs were systolic in time with the exception of those in a few cases of chronic heart disease. A systolic murmur at the apex or base of the heart was noted in all but 53 patients, namely: 94% of the cases where the condition of the heart was carefully observed and recorded. The number of cases with murmurs is probably even larger than these figures indicate, because the 53 patients recorded as having no murmurs include cases in which the heart examination was unsatisfactory, because the patient was moribund at entrance, or because the respiratory sounds, due to intubation, tracheotomy or bronchopneumonia, made it impossible to hear the heart sounds.

In view of the great number of murmurs found, it is desirable to say that these observations were confirmed in each case by two or three competent observers; that the murmurs were not doubtful or faint, or such as required change in the position of the patient to bring them out, but were, for the most part, loud and blowing in character.

In the cases having murmurs their position was at both apex and base in 77%; at the apex alone in 20%; at the base alone in about 3%. To sum up, the murmurs were loud, sometimes musical; were usually heard at the apex, frequently transmitted to the axilla and usually associated with accentuation of the pulmonic second sound; they were not affected by change of position of the patient. The majority were associated with irregular heart action and outlasted the fever. We do not, therefore, consider them simply functional murmurs, but for the most part due to the actual changes in the heart wall or papillary muscle.

The heart murmurs developed within the first few days of illness in most cases. In 90% of the cases having murmurs, they were present at entrance to the hospital; in the remaining 10% the first note of the presence of a murmur was made within one or two weeks after entrance. These notes probably do not always represent their first appearance.

The duration was usually several weeks, at

least, and in about 78% of the cases one or more murmurs were present at discharge, the relative frequency at base and apex being the same as during their stay in the hospital. The duration of the murmurs after leaving the hospital is unknown, except in a few instances. Five or six patients were examined eight or ten months after leaving the hospital and each showed a murmur, and of these, two cases had some cardiac enlargement and irregularity with a weak first sound, indicating a probably chronic myocarditis. Many patients were seen at an interval of several weeks after leaving the hospital. In many of these cases cardiac murmurs or irregularity were found, and yet the patients were attending school and taking moderate exercise without any heart symptoms or other perceptible bad results. The authors hope to look this matter up later, to determine, if possible, the permanent effects of diphtheria upon the heart. Schwaltz says that permanent disease of the heart after diphtheria is not rare.

The mere presence of a murmur has little or no prognostic value, it is so nearly universal. The cardiac signs which are important in prognosis are gallop rhythm, rapid and irregular pulse, cardiac enlargement, late vomiting, etc., which will be considered at length later.

The large number of children discharged from the hospital with a rather rapid and irregular pulse and cardiac murmurs is very striking, and contrasts strongly with the condition of children at the end of other acute infections, such as measles and scarlet fever, or the condition of adults at the end of such acute infections as typhoid, grippe or pneumonia, and at first sight it would seem to be very desirable to keep these patients under observation in the hospital until the heart had entirely regained its equilibrium. This matter will be considered under treatment.

The clinical course of the cases does not explain the cause of these murmurs, it only indicates their frequency and relative importance. Pathological studies have shown that the murmurs are probably due largely to relative mitral insufficiency resulting from changes in the heart muscle or to changes in the innervation of the heart. Autopsies have shown that endocarditis and pericarditis are extremely rare complications of diphtheria.

The first sign of cardiac disturbance was the appearance of a murmur in 89% of the patients, of a murmur combined with irregularity of the heart in 10%, and of irregularity alone in 1%; these signs were present at entrance to the hospital after only a few days' illness in 95% of the patients.

Cardiac enlargement was infrequent, and apart from the changes due to chronic heart disease was found only in the severe cases. We have considered the heart to be normal in size when the right border was at the parasternal line and the left border at or just outside the nipple line in children under five, and at or just within the nipple line in older children.

Lees insists on the importance of the diagnosis of cardiac dilatation by a careful determination of the area of cardiac dullness. We believe that he exaggerates the frequency and importance of acute dilatation and syncope. In our series almost all the fatal cases showed a gradual heart failure; cases of sudden death from heart failure during rational treatment were extremely rare. We agree with Poynton that dilatation of the heart is not so marked in diphtheria as in rheumatic fever.

Seventeen of the patients had chronic heart disease at entrance to the hospital, 13 had mitral regurgitation, 1 mitral regurgitation and stenosis, 2 aortic regurgitation, and 1 congenital heart disease. All these patients recovered and the course of the illness was no more severe than in the average patient. We could find no evidence that the heart in these patients was more susceptible to the diphtheritic poison than a normal heart. The patient with the congenital heart was two years old. He was intubed four times, had bronchopneumonia, was in the hospital twelve weeks, but made a perfect recovery from the diphtheria, and the heart was left apparently in the same condition as at entrance.

We shall now consider the small group of cases in which the heart symptoms were especially important. Some fatal cases of diphtheria are overwhelmed with poison and die in two or three days with all the symptoms of toxemia. The serious heart complications, however, usually develop only during or after the second week of illness. There is no way in which one can foretell in which case such a complication will occur, but the more severe the illness and the longer without treatment, the greater the liability of its occurrence.

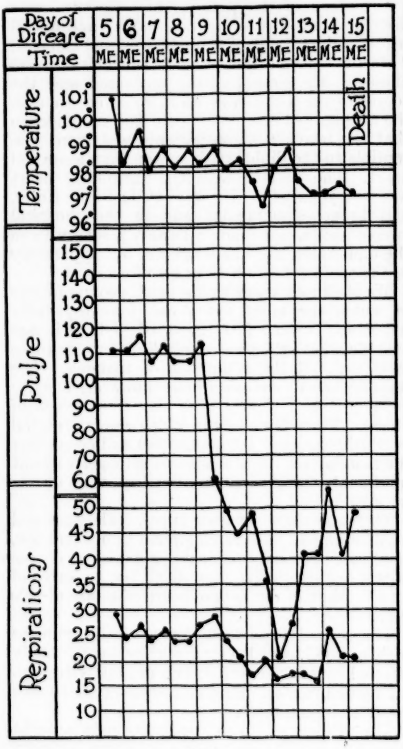
There are three separate types. The first and most serious type have gallop rhythm, vomiting, epigastric pain and tenderness, run a short course of two or three weeks, and die in the majority of cases. Most of our severe heart cases are of this type.

The second type lasts for weeks or months with a rapid, regular or irregular heart, easily affected by slight exertion and gradually becoming normal in rate. As a rule there are few other important symptoms.

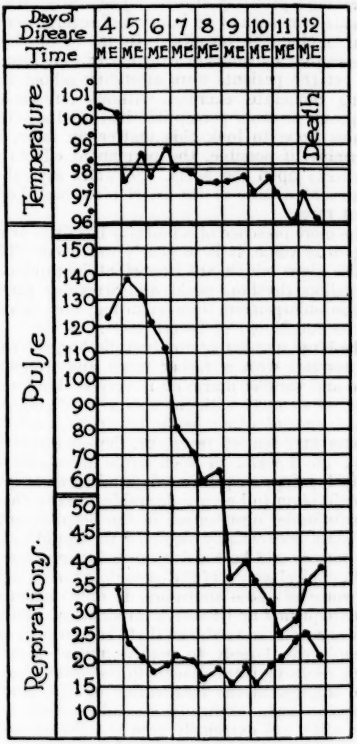
The third type is rare, occurring only once in every 600 or 700 cases; its main feature is a very slow pulse occurring at the end of the second or the beginning of the third week. There is a marked decrease in rate over a period of three days, the pulse dropping from 110 or thereabouts, to 30 or even 20. Until the pulse reaches a low level (40) the subjective symptoms are slight, but when the rate gets below this there is marked prostration. The heart sounds are very weak, a moderate dilatation of the heart occurs; there is no vomiting. There were three such cases in our series, all fatal. These are so unusual that the charts are appended and a brief description given.

The first two illustrate the usual course in this type. In each case the disease was severe and treatment had been delayed for four or five days.

The drop in the pulse rate was sudden and not accompanied by subjective symptoms until the rate was below 40; after this time a gradual dilatation of the heart occurred which continued until death. There was pallor, slight tibial edema, marked diminution in the amount of urine which contained albumin in each case.



No. 1.



No. 2.

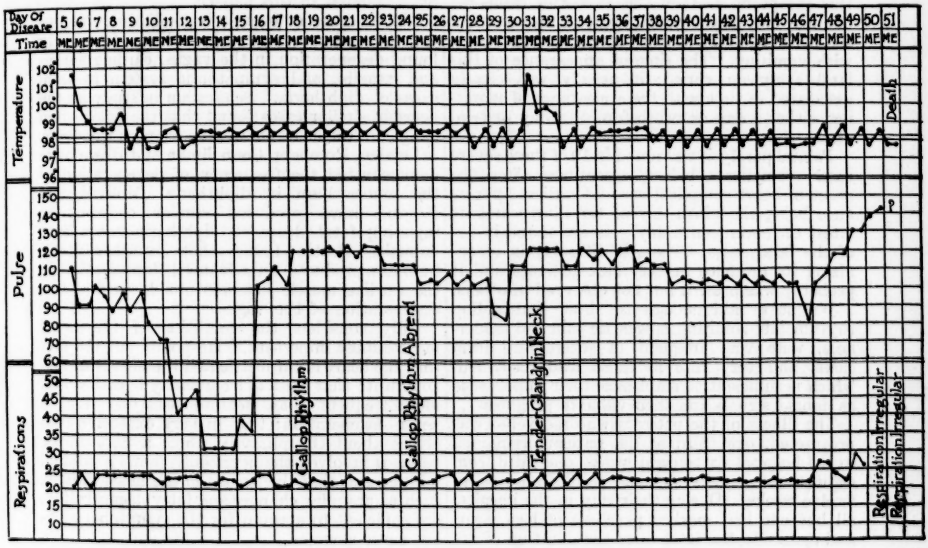
Vomiting and epigastric pain and tenderness were not present. The patients failed gradually and death occurred a few days after the development of the bradycardia.

The third case is of especial interest. Here the pulse varied between 30 and 40 for four days. Three days later it was 120 and a well marked gallop rhythm was present, which lasted for seven days. From this time the patient slowly improved until the sixth week when paralysis of extremities, palate, and muscles of deglutition and respiration developed which caused his death. The striking feature of this case is the fact that the patient survived the period of bradycardia and gallop rhythm, only to die of late paralyses.

We will now outline a brief clinical picture of the group of heart cases characterized by such symptoms as gallop rhythm, vomiting, epigastric pain and tenderness.

The appearance of gallop rhythm is usually indicated by an increase in the pulse rate. The pulse may increase in frequency for a day or so, often reaching 140 or more, when the gallop appears. In other cases it appears in comparatively few hours, usually the more rapid its appearance the more serious the outlook. By the time it is well marked the pulse is 140 to 160 or more, weak and thready and often irregular at the wrist. The gallop may continue several days and the child be apparently not much affected except for a little pallor, loss of appetite and restlessness. Rapidly increasing prostration, however, soon follows and the child becomes blanched and vomiting occurs.

Vomiting is apparently unattended by nausea; anything taken by mouth is almost immediately returned, and even if no food is taken vomiting in small amounts occurs. First, yellow fluid with mucus, and later, brownish material containing altered blood. About the time that vomiting occurs the child complains of epigastric pain and tenderness, and on examination well marked spasm is found. These signs are not transitory but continue until death occurs or recovery begins. Very little urine is secreted; it nearly always contains albumin. There is often slight edema over the shins, but no general edema. The respiration may be a little hurried but there is no dyspnea. The heart is usually moderately dilated.



No. 3.

The duration of life after these symptoms have developed is usually short, one to three days. The heart is dilated, the pallor becomes extreme, vomiting becomes more frequent, the vomitus running from the child's mouth, the pulse becomes more and more rapid, the child is restless and continually cries for water which if given is immediately returned mixed with altered blood. The pulse is finally lost at the wrist and death occurs in from twelve to forty-eight hours. Cyanosis is absent.

In other cases the gallop rhythm continues without much effect upon the child's condition. The pulse is rapid and weak and the heart may be dilated. There is no vomiting and no epigastric pain and tenderness; the gallop gradually grows less marked and finally disappears leaving the heart weak, irregular and rapid. Exertion may cause the gallop to reappear. This condition may last from a few days to several weeks. After recovery the heart is usually rapid, weak and irregular for weeks or months.

Palatal paralysis may occur in these patients and is indicated by nasal voice and regurgitation of the food through the nose.

We will now give the statistics in the 36 cases having very serious heart complications as indicated by gallop rhythm. Nineteen were males and 17 females. The ages were as follows:

Under 2 years	1
Between 2 and 5 years	10
Between 5 and 10 years	15
Between 10 and 15 years	9
Over 15 years	1

Two thirds of these patients died, one on the second day, the others on the fourth to eighth days. The effect of late treatment upon the mortality is shown by the fact that four fifths of the fatal cases had no treatment until after the fourth day. Among the cases which recovered, three fourths were treated before the fourth day. The severity of the illness is indicated by the fact that at entrance all but two patients had a pulse of over 120 and several a pulse of 140 or over.

The first important cardiac symptom that we consider is gallop rhythm; this was found in all the cases. It appeared in one case on the sixth day, in one on the twenty-seventh, in all the others from the ninth to the eighteenth day. When gallop rhythm appears, murmurs which usually are present become indistinguishable.

Late vomiting is the next important symptom. This occurred in about two thirds of the cases.

It was present in all but four of the fatal cases; of these four cases three died of paralysis of respiration and deglutition in the sixth to the eighth week, having recovered from the gallop rhythm, leaving only one patient who died during the gallop stage and who had no vomiting. Thus we see that late vomiting was almost invariable in the fatal cases. Among the patients who recovered, on the other hand, there was only one with gallop rhythm who had also late vomiting. In nearly every case the appearance of the gallop rhythm preceded the onset of vomiting from one to four days, occasionally longer.

The next symptom is epigastric pain and tenderness. Nine tenths of the patients who had this symptom died; of the two who recovered one had only slight tenderness and no vomiting, the other had well marked tenderness and pain, with vomiting. The time of appearance of this fatal symptom varied; it usually was closely associated in time with the appearance of vomiting, either a day or two before or a day or two after.

Palatal paralysis was noted in 19 of these severe cases, sometimes before, sometimes after the onset of heart complications; its earliest appearance being the ninth day of the illness and its latest the seventeenth day. It was found in ten of the fatal cases. There is difficulty in recognizing its presence in very sick patients and it probably was present but not observed in others.

We have said enough to show that gallop rhythm, late vomiting, epigastric pain and tenderness, were very frequent in severe and fatal cases, and very rare in those who recovered, which is sufficient to emphasize their importance as danger signals and their value in prognosis.

The illness of the patients who recovered was protracted, one third of the patients remained in the hospital six to eight weeks, one third from eight to ten weeks and one third from ten to twelve weeks. During their stay in the hospital all but one had marked paralysis of legs, arms and eyes. In the fatal cases the duration of life was short, all but three died between the tenth and twentieth days of their illness, three lived from six to eight weeks; all the latter suffered from late paralyses.

The condition of these patients at discharge was interesting. Among those who recovered, two thirds had an irregular pulse, all but one had murmurs at the apex and base of the heart, all but one had a weak first sound, all had a rapid pulse rate, the slowest being 110. In two cases which recovered the heart was enlarged at discharge; in practically all of the fatal cases the heart was dilated. The other signs of cardiac disturbance were not striking, sometimes there was slight edema of the ankles and scanty urine; the respiration was rapid, averaging 35, and often irregular, especially at the latter part of the illness; there was no cyanosis. One case discharged at the end of six weeks had no paralysis; all the others had severe paralyses. The great danger in delaying treatment with antitoxin is emphasized by the occurrence of so many serious and fatal heart complications, the likelihood of prolonged or permanent damage to the heart even in cases which recovered, and the abundant and severe post-diphtheritic paralyses, for it will be remembered that four fifths of these fatal cases had no treatment with antitoxin until four of five days after the illness began. The cases which recovered had no treatment for at least three days, and they proved to be long, severe and dangerous.

The relative importance of pathological changes in the heart muscle and in the nerves controlling the heart has been much discussed from both the clinical and pathological point of view. The subject is interesting, but we propose to say very little about it in this paper.

The evidence at present is conflicting. Veronese, Councilman and others have frequently found degeneration in the vagus, cardiac nerves and ganglia, and sympathetic system in fatal cases of diphtheria. Schamshin in studying the heart in similar cases found that the nerves and ganglia of the heart showed no changes whatever.

Leyden, Romberg, Councilman and Hesse have demonstrated the frequency of degeneration of the myocardium in diphtheria. Mollard and Regaud have produced similar changes by injecting fatal doses of diphtheria toxin into animals. Martin found that diphthereal albumoses produced an advanced degeneration in the cardiac muscle but was unable to find any degeneration of the vagus.

Villy considers the condition of the heart muscle most important. He points out the fact that the heart is automatic and the nerves simply govern it; that cardiac irregularity is earlier and more frequent than definite paralyses due to nerve degeneration; that in very extensive paralyses about the pharynx where a part of the vagus is involved the heart only shows a gradual failure; and that the lesions in the heart muscle, such as granular changes and fatty degeneration, are sufficient to account for the symptoms without nerve changes.

Pässler and Romberg have concluded from studies of experimental diphtheria in animals that the changes in the circulation which are usually attributed to heart weakness are in reality the results of damage to the vasomotor apparatus.

We have no pathological evidence from our group of cases; the autopsies were too few to base conclusions upon. We have seen, however, that in the severest type of heart cases degeneration of the vagus was indicated by the very frequent appearance of palatal paralysis, late vomiting, epigastric pain and tenderness, and it is reasonable to suppose that the faulty heart action in these cases was due in part to these nerve changes.

TREATMENT.

It has been our experience that rest in bed and nursing are most important in the treatment of heart complications, and that drugs play a small part.

Our figures show that the serious complications nearly always develop within three weeks from

the onset of the illness, although in rare cases they may appear several days later.

It is usually safe to allow the mild cases to be out of bed at the end of two weeks. The presence of murmurs and a slight degree of irregularity are no contra-indication, if the first sound is strong and the heart is not dilated. Many of the cases, severely ill or ill several days without treatment, apparently do well for two weeks or more, the pulse may be a little irregular and rapid but the condition of the patient causes no anxiety. It is not, however, safe to allow these cases out of bed, even if the pulse is normal in rate and of fair strength. If four or five weeks pass and no serious heart complications arise, the danger from this source is usually over, although death may occur from other late effects of the disease such as paralyses of respiration and deglutition. It has been our experience that after four or five weeks a patient with well marked murmurs and irregular pulse, even if rapid, experiences no ill results from being allowed to sit up if the heart is carefully watched.

We will separately describe the treatment in ordinary cases, in those with persistent rapid pulse, and in those with gallop rhythm. In cases with a murmur and little irregularity the treatment is directed to improving the general condition of the child. The patient is allowed to sit up after two or three weeks of illness, but active exercise is forbidden. Digitalis and alcohol rarely do any good; strychnia is the best drug and is given in doses of $\frac{1}{60}$ of a grain every four hours for a child of five to ten years. In many cases larger doses seem to be useful and produce no unfavorable effects.

Cases with persistently rapid pulse should be kept in bed at least four or five weeks and then allowed to sit up for short and progressively longer intervals, the heart being carefully watched on each occasion. Frequently, after four or five weeks' rest in bed the heart action is improved by this change. Strychnia seems to be the only drug of any value.

In cases with gallop rhythm absolute rest in bed is necessary and a liquid diet is given. At the first appearance of vomiting food should be given by rectum and cracked ice given by mouth for thirst. Strychnia in doses of $\frac{1}{60}$ to $\frac{1}{30}$ of a grain every four hours for children three years and over is given with the best results, although drugs influence this condition but little. If there is vomiting the strychnia should be given subcutaneously. Cocaine in doses of $\frac{1}{12}$ gr. every four to six hours in ice cold water at times relieves the vomiting; alcoholic drugs, even champagne, are not well borne, and often increase the vomiting. Morphia in doses of $\frac{1}{16}$ to $\frac{1}{8}$ gr., depending on the age, is of value to quiet restlessness. Predigested beef products, if given in small amounts, are often retained when everything else is rejected. Hot applications to the epigastrium sometimes relieve the vomiting and pain. Digitalis is useless and usually increases the vomiting.

Sudden deaths have occurred in our series of cases from asphyxia, but there have been no sudden deaths in the hospital from heart complications. It has occurred several times, however, that patients who have been taken out against advice about the end of the second week have died suddenly during the stage of gallop rhythm when allowed out of bed. For example, a child of three years after three weeks' stay in the hospital was taken home against advice just at the time in the illness when serious heart complications are common. A few days later the child died suddenly while being held up to the window to see some friends. This emphasizes the necessity for absolute rest in bed until all likelihood of the development of gallop rhythm has passed. The rest does not prevent the appearance of the complications but renders the outlook relatively favorable.

The cases of bradycardia require no special treatment beyond rest in bed and strychnia. Long duration of murmurs and irregularity of the heart indicate the necessity for following cases of diphtheria long after convalescence, to study and prevent possible permanent changes in the heart.

The after-treatment of all except the mild cases consists in watching the effect of mild exercise upon the heart for several months at least, and grading it to meet individual requirements.

The points which we especially wish to emphasize in summing up are as follows:

(1) The great frequency of heart murmurs and of irregularity of the pulse. The prognosis does not depend on the mere presence of these signs, but upon the severity of the infection, the length of time without treatment, the rate and degree of irregularity of the pulse and the presence of the graver signs of cardiac disturbance.

(2) Moderate disturbance of the heart is very common; severe complications are infrequent.

(3) Frequent examinations of the heart are necessary to really determine its condition, because of the marked changes in rhythm from one hour to the next.

(4) Gallop rhythm, late vomiting, and epigastric pain and tenderness are important as danger signals of severe heart complications. The association of late vomiting with gallop rhythm renders the outlook almost hopeless.

(5) Antitoxin does not affect the heart unfavorably, but on the other hand, its early use prevents the appearance of grave heart complications.

(6) Frequent examination of the heart and pulse in the second and third week of the illness are necessary, that being the time when severe heart complications most frequently occur.

(7) Bronchopneumonia is a more frequent fatal complication of diphtheria than heart disease; sudden death from heart disease is very rare when patients are kept in bed for a proper period.

(8) Prolonged rest in bed is necessary in al severe cases; it is not necessary to keep all patients in bed who have cardiac murmurs and a pulse which is somewhat irregular and increased in rate. One should be governed by the stage of

the illness and the patient's general condition. If no serious heart trouble has developed within four weeks the patients are usually safe from this complication.

(9) Heart murmurs and irregularity are of long duration in many cases, and make it necessary to watch the condition of the heart long after convalescence in all severe cases.

We wish to acknowledge our indebtedness to Dr. McCollom, medical director of the South Department of the Boston City Hospital, for the opportunity to study these cases, and for his valuable suggestions and kindly interest in our work.

REFERENCES.

Councilman, Mallory and Pearce: Jour. Bost. Soc. Med. Sc., 1900-1, v, 139.
Hesse: Jahrbuch. f. Kinderheilk., 1893, xxxvi, 19, 396.
Lees: Brit. Med. Jour., 1901, i, 7.
Leyden: Zeitschrft. f. klin. Med., 1882, iv.
Martin: Lancet, 1892, i, 677, 735, 787.
Mollard and Regaud: Annales de l'Institut. Pasteur, 1897, xi, 97.
Fässler and Romberg: Verh. des. Congr. für Inn. Med., 1896, xiv, 256.
Poynton: Lancet, 1901, i, 1352.
Romberg: Deutsches Arch. f. kl. Med., 1891, xlviii, 369; 1892, xlix, 413.
Schamshin: Zeigler's Beiträge, 1895, xviii.
Schwaltz: Jahrb. f. Kinderh., 1900, li, 424.
Veronese: Wien. klin. Woch., 1893, 305, 401.
Villy: Manchester Med. Chron., 1899, i, 391.

THE ASSOUAN CURE.

BY F. GORDON MORRILL, M.D., BOSTON,
Consulting Physician to the Boston Children's Hospital.

A FAIRLY good excuse for venturing to add to the present list of "cures[1]" may be found in the fact that the one in question comprises no baths, no special diet nor consumption of medicinal waters. One is neither steamed, starved, nor nauseated; the benefit is derived from the air only, and as one must breathe to live, no extra trouble is involved.

The quality of this air of the Nubian desert differs essentially from that of any other which can be found in conjunction with the comforts of civilized life. Dryness is its main characteristic (an average relative humidity of 41° during the "season") together with a comfortable degree of warmth. An idea of what this low degree of relative humidity means may be found in the records of the chief engineer of the great dam, which show an average daily evaporation (from 60 square miles of back water) of 1,400,000 tons. During exceptionally hot spells this amount of atmospheric absorption is greatly increased, as, for instance, during three days in early April of the present year, which included thirty-six hours of *khamsin* (sand storm), when 5,000,000 tons *per diem* were taken up. This dryness of the air, taken in connection with an average mean temperature of 67° F. and absence of rain, constitutes an almost ideal winter climate.

But it may be asked, Are there no drawbacks to these delightful conditions? There are, and they will be frankly stated later on.

The freedom with which advice about climates based upon an insufficient knowledge of facts is given (and accepted), both by laymen and doctors, is remarkable. Even men who are rather conservative in most things occasionally commit themselves fully when a question arises as to what sort of weather may be looked for in almost any known spot of the habitable globe, and this in apparently good faith, although the informant's recollection of his ten days' sojourn at the place in question may be vague, or he may never have visited it, and is merely repeating what he has read or has heard from others. It is to this loose custom and the printed matter scattered broadcast that is due the widespread belief that delightful weather may be confidently anticipated on the Riviera during the winter months, and that the air of Southern Italy and Sicily ("where oranges[2] ripen in January") is warm and balmy throughout the entire year. The same sort of thing obtains as regards Egypt. Invalids are advised to "winter" there without any specific directions as to location in a country which is a thousand miles in length. "Dahabieh life" is prescribed in cases where grave risks would be involved, for unless in robust health one had better stay ashore (between Cairo and Assiut in any event) during the three months succeeding the middle of December.

For one who has known the country even five years there is no need of consulting meteorological records to make sure that the rainfall of lower Egypt has increased in proportion to the irrigation. The old-fashioned *fellah* says that formerly Allah provided sunshine, and that the farmer was perfectly willing to pump the water needed for cultivation from the Nile, and dislikes this inversion of the source of supply. Twenty odd years ago, before the present structure was built, the guests at Shepheard's were surprised by a sudden downfall of rain, which penetrated the mud roof and soaked their bedding; and to prove how little this sort of thing was expected in those days, no provision had been made for conducting the water off the terrace floor, where it stood until the mud brick supports of the railing softened and gave way. At the present time a similar downpour would surprise none but a first season tourist.

But to return to Assouan and state certain disagreeable features of its climate which one occasionally experiences during the "invalid season," by which is meant the fourteen or fifteen weeks beginning about Dec. 10, the season proper being somewhat shorter. Aside from two (possibly three) full blown *khamsins* (during each of which one must remain indoors for an average of thirty-six hours), there is another peculiar condition of the atmosphere which occurs with about equal frequency and lasts equally long: an apparent mist hangs over the Nile valley. So strongly does it resemble a moderate degree of fog that it was only by means of a sheet of white paper smeared with vaseline and exposed to the open air that I have been able to convince myself that it is due to the presence in the atmosphere of sand, so fine as to be impalpable.

[1] The word "*cure*" (Fr.) signifies in Europe the *treatment* by which a cure (Eng.) may be obtained.

[2] There is one particularly leathery variety which might do fairly well within the Arctic Circle.

The cause of this curious phenomenon is as follows: The prevailing wind at Assouan is N.N.W., and as one rides in the desert he observes that in many places the surface sand lies in ridges at a right angle with this point of the compass. After several days, during which the wind has veered but a point or two, the finest grains lie on the surface of the southern slope of the crests. Now a south wind is very rare at Assouan in winter, and when it blows is like a blast from a furnace, and is usually the precursor of a sand storm,— the operation being completed by a shift to the usual quarter, and a rate which would be logged as a "moderate gale." Not so under the conditions to which I refer, when a gentle and temporary puff from the south sends this finest sand a dozen feet or so in the air, and the usual northerly breeze which quickly follows whirls it aloft, where it hangs until it descends by its own weight. This state of the atmosphere often extends hundreds of miles along the river, and is irritating to sensitive mucous membranes, but counts for little in the long run as compared with the benefit which the climate confers on the great majority of respiratory diseases. It must be remembered that one can no more find a desert climate without sand than a sea bath without salt, and that taking the season through, there are no more than five or six days when the invalid is better off indoors. Again, the evenings from Jan. 1 for an average period of five weeks are decidedly cool, and open fires in the foyer of the hotel are grateful; but no place on earth, so far as I can ascertain, is uniformly warm throughout the winter and at the same time free from rain and malaria, from both of which Assouan is exempt.

In early March here, there come one or two extremely hot days (say 95°F. in the open shade), but these are always followed by delightful weather, and those who hurry North thinking that the heat will soon become unbearable are very likely to find Cairo and its environs still chilly, and lose a portion of whatever gain in health they may have made. On the other hand, delaying one's departure after March 25 is unwise, for at any time now may be expected the sort of thing which arrived on April 3, 1904, when the thermometer stood at 106° F. on the covered terrace of the Cataract Hotel, and the air was too dry to satisfy one's respiratory hunger. This condition was present for a day and a half (a *khamsin* blowing steadily), and I for one felt that I had delayed my departure too long, and was glad enough to board a steamer four days later and seek a cooler and moister atmosphere.

Complaints of the monotony of a long stay at Assouan are frequent, and it is certainly not the sort of life that a well person would choose if the object sought were amusement only. On the other hand, the amount of entertainment which one extracts from any place, after the novelty of the surroundings has worn off, depends in a great measure upon the quality of his mental equipment. It is true that many people soon tire of the Nile, the desert, and the "everlasting" sunshine, but this can in a measure be prevented by getting one's mind into receptive condition[3] for actual knowledge of a most interesting country, which is inhabited by a people whose customs, dress, mental characteristics and robust faith in El Islam form an endless source of entertainment — and all this aside from what is usually recognized as "Egyptology," which may or may not appeal in any given case. The list of available amusements includes camel, horse, and donkey riding, poor golf, good facilities for tennis and most excellent ones for boating. The offhand advice, "Go to Assouan and sit in the sun" is unsafe, for but few can stand a sun bath of such potency. One feels it less when walking or riding, but even when under the protection of a sun hat it is well to keep in the shade from noon to within an hour or so of sunset.

A well-seasoned Egyptologist, whose work often involves long camel rides in the desert, tells me that he feels much less exhaustion from the sun's rays when clad in a thick ulster with collar upturned, than in thin clothing; and this statement is amply confirmed by the natives, who evidently find comfort in a shawl wrapped about the head and shoulders when in the open, to be discarded in the shade. The nights are comfortably cool as a rule, and one sleeps well. Many object to the wind, which blows steadily most of the time, and occasionally too hard for comfort, but without it the air would be lifeless and the appetite would fail. Incidentally, much amusement may be had by intercourse with the natives along the river front, for a study of the "gyppy" is a source of delight to the student of human nature.[4] The bazaar, too, is most attractive, and one finds there far more curious things from the Soudan than in the Mousky of Cairo.

As to food, the quality of Egyptian meat is not high, and when one sees what the cattle are fed on (no hay is made in Egypt), their diminutive size and lack of adipose tissue is easily explained. Importation "on the hoof" is forbidden, and until a cold storage plant is established in Cairo,[5] one must make the best of food which, after all, compares favorably with that of the ordinary continental *table d'hote*. As the season advances and the hotel becomes emptier each day, the temptation to go North increases; but it is far safer to delay until one is sure of warm weather in Lower Egypt. One feature of the "cure" is very gratifying,— the visible improvement (as a rule) in the invalid's condition shortly after reaching a cooler and moister air. Those who have made but slight perceptible gain while

[3] One should read Lady Duff Gordon's Letters, Warner's "Winter on the Nile," Milner's "England in Egypt," in order of succession, and have on hand at Assouan (where news from the Soudan is constantly drifting in) Sir Samuel Baker's "Albert Nyanza" and "Ismailia," Slatin's "Fire and Sword in the Soudan," Gordon's Journal, etc., As for Egyptology, the average person gets all he cares for (and considerably more than he can assimilate) from his Baedecker.

[4] One may occasionally buy a good scarab of a most unpromising looking vagabond, but is far more likely to acquire modern imitations fresh (I had almost said "*hot*") from the oven of Abdul Halim of Gorna — most artful of fakirs, whose productions pervade all Egypt.

[5] This is very likely to come about in the near future.

at Assouan suddenly realize that, after all, progress has been made, while such as have done better take at once a longer stride towards health.

Another temptation has now to be resisted by those who are dependent upon warm weather: after a winter passed in what many consider a dull place and having "done" Cairo, one naturally wishes to join the general exodus for the continent. But it is safer to remain until about May 1, unless to visit the Riviera,[6] *which is the only place in Europe where continuous warm weather can be found in the spring before May* 15 *in average years.*[7]

For such as remain in Egypt after April 25, Mena House is the best stopping place, Ghezireh Palace being now closed, and Cairo itself unsuitable. Or one may go to Ramleh, near Alexandria, where the season opens May 1, if sea air is desirable.

So far as temperature goes, Lower Egypt is by no means unbearable at this time of the year if one keeps in the shade; 96° F. was the highest point in April, 1904, the average maximum not exceeding 85° F.

The diseases which derive the greatest benefit from a prolonged stay at Assouan are as follows, and are given in an order of succession indicating the comparative suitability of the climate:

1. Nervous exhaustion from any cause and delayed convalescence from prolonged illness. In such cases the ability to lead an outdoor life and tonic properties of the air are very beneficial.

2. Chronic bronchitis with emphysema and cardiac dilatation, perhaps accompanied by a tendency to asthma. Cases of this sort usually make a very decided gain, even when their respiratory mucous membranes are congested and sensitive.

On the other hand, when the larynx or nasopharynx is *alone* affected, the climate is unsuitable.

3. Rheumatic affections and neuralgias. Curiously enough, cases of this kind are more subject to pain during *khamsins* or periods of extreme heat. The same thing obtains among the natives who, while entirely free from anything like acute rheumatism, are often troubled by pain and stiffness in their joints, due to sleeping on the dirt floors of their mud huts, surrounded by growing crops, which are freely irrigated. As a rule, the class of patients above mentioned improve radically.

There is no place more suitable for the establishment of a "sand cure" (by which is meant covering the affected parts or even the whole body with heated sand) than Assouan. In the solitary instance in which I saw it tried (without any professional supervision) it proved too exhausting; but this method of treatment has an established reputation in Germany, and I look forward to some day seeing it properly carried out at Assouan under the supervision of a competent physician.

4. Cases of prolonged albuminuria, in which the renal conditions are such as to render the prognosis (at best) doubtful. I have known of more than one of these "border line" cases which have cleared up completely.[8]

5. I have observed two or three cases of incipient pulmonary tuberculosis which have done remarkably well. In one instance the patient camped out in the desert a short distance from the town, and the change in his condition for the better was phenomenal; but I am not yet satisfied that Assouan is the best place after the disease has become well established.

In conclusion, the writer would say that he must by no means be understood as condemning the climate of Lower Egypt, which is excellent as winter climates go (and certainly far better than anything which can be found in Europe between Jan. 1 and the middle of April), but not to be compared with that of Assouan for health seekers.

[6] The Messageries boats run from Alexandria to Marseilles.

[7] June 1 is the date consecrated to leaving off winter flannels by modern Romans. It is only after a series of mistakes, due to discrediting some of the generally accepted notions about continental climates, that the writer has at last reached what he believes to be the truth.

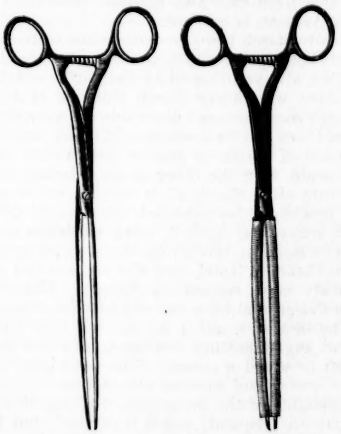
[8] The Germans (who are much addicted to having their urine tested for albumin in whatever part of the world they may happen to be) regard Assouan as the Mecca for renal diseases.

New Instrument.

A GASTRO-ENTEROSTOMY CLAMP.

BY CHARLES L. SCUDDER, M.D., BOSTON,
Surgeon to the Massachusetts General Hospital.

A VERY important improvement in the technique of the operation of gastro-enterostomy is the proper use of rubber-covered clamps. The clamp ordinarily used is that of Doyen, devised primarily as a broad ligament clamp in the operation of hysterectomy. There are three objections to the clamp in common use. It is awkwardly heavy with its long handles and clumsy blades. Its blades are too short in many instances in which a large opening is needed, and it un-



necessarily compresses the stomach and gut at the base of the blades, damaging the peritoneum at this point. A straight clamp is most convenient in this operation. The reasons for using the clamp are the assurance of cleanliness and the securing of hemostasis.

The clamp, made for me by Codman & Shurtleff, when rubber-covered, as illustrated in the drawing, permits the pressure upon the bowel and stomach to be graduated to a nicety, occluding the gut and preventing hemorrhage. The use of the clamp also facilitates the employment of the continuous suture, which is most efficient and more rapidly taken than an interrupted suture. The use of the clamp also precludes the puckering of the wound, which is said to occur when a continuous suture is used. The clamp being removed after the suture is applied, it is impossible to pucker the wound by the continuous suture. One of the early publications suggesting the use of the clamp in gastro-enterostomy was made by Littlewood of Leeds, England, in a communication to the Leeds and West Riding Medico-Chirurgical Society in October, 1900. This communication was published in the London *Lancet*, Nov. 3, 1900, p. 1275.

Clinical Department.

CASE OF RUPTURE OF THE SPLEEN.

BY JOSHUA C. HUBBARD, M.D., BOSTON.
Third Assistant Visiting Surgeon, Boston City Hospital.

A. D., thirty-three years old, was brought to the hospital on Sept. 10, 1903. Twenty-four hours previous, during a scuffle with her husband, she had been thrown to the floor and kicked in the lower part of the chest on the left. She paid little attention to the bruise and went to bed. In a half hour the pain was sufficient to wake her and prevent her from lying on that side. She remained in bed till the next day when she sent for a doctor who referred her to the hospital.

Examination: Patient lay on right side with knees flexed, in considerable shock. Skin cold. Mucous membranes pale. Pupils contracted and reacted but slightly to light. Lungs normal. Heart sounds faint. No murmurs detected. Pulse at wrist counted as 90, but very weak, of poor volume and tension. Abdomen lax and protuberant. No muscular spasm. Tenderness in left upper quadrant where an indefinite mass was felt. Free fluid in the abdomen. Leucocyte count 8,900.

The case presented, therefore, the symptoms of an internal hemorrhage, and a provisional diagnosis of rupture of the spleen was made.

Ether was immediately given and a three-inch incision was made through the left rectus. The peritoneal cavity was found full of blood and clots. The spleen was identified and was so freely movable that it could be delivered on to the abdominal wall. The patient was so nearly exsanguinated that the slight tension necessary to hold the spleen thus delivered was sufficient to entirely obliterate all pulsation in the splenic artery. A laceration was found in the lower part, two inches long, and one surface was badly bruised. The pedicle was transfixed and tied off and the spleen excised. The abdominal cavity was hurriedly irrigated with salt solution though no attempt was made to wash it free from clots and blood. The abdominal wall was sutured.

With the beginning of the operation intravenous and subcutaneous infusions of salt solution were begun. Under these and the usual treatment for shock the pulse improved and the patient rallied from the operation.

In this particular case there was no opportunity to attempt to stop the hemorrhage from the splenic tissue by sutures, for the almost bloodless condition of the patient contra-indicated any procedure but the quickest *i. e.*, excision.

The patient made a steady and uninterrupted convalescence from the abdominal operation. One of the sites where the salt solution had been given became somewhat inflamed but gave no trouble; numbness and pain developed in the feet and legs after having been out of bed for two days. This was considered as possibly due to neuritis. It, however, proved of no especial consequence and the patient was discharged on Oct. 5, well.

Several blood examinations were made during the convalescence; none, however, showed any change which could be attributed to the absence of the spleen. The following is given as an average count: Leucocytes 16,600; erythrocytes 3,250,000; hemoglobin 50%. The differential count was: polymorphonuclear 69½%, large mononuclear 4½%, small mononuclear 22%, eosinophiles 4%.

The patient is still alive at the end of a year and apparently none the worse for the loss of her spleen as she is leading the same life of dissipation as before the operation.

Reports of Societies.

AMERICAN MEDICAL ASSOCIATION. SURGICAL SECTION.

(Concluded from No. 15, p. 416.)

SECOND DAY — (Continued.)

THE DIAGNOSIS OF APPENDICITIS. SHOULD THE APPENDIX BE REMOVED WHEN THE ABDOMEN IS OPENED FOR OTHER CAUSES?

Dr. FLOYD W. MCRAE, Atlanta, Ga., stated that the diagnosis of appendicitis was not always easy, and must in a limited number of cases be made by exclusion and careful marshaling of symptoms and physical signs. He advised thorough examination, the avoidance of routine and snap diagnoses and have a summary of the most important diagnostic points. He believed that the appendix should be removed when the abdomen is opened and the organ is accessible unless there be some special contra-indications, as the non-removal of the appendix is such a frequent cause of incomplete cures following abdominal and pelvic operations. He claimed that disease of the appendix was often associated with floating kidney, gall bladder and rectal troubles, advised removal under such conditions when practicable and gave illustrative cases.

FACTORS IN THE MORTALITY OF APPENDICITIS.

Dr. JOHN B. DEAVER, Philadelphia, spoke of the influence of a previous attack of appendicitis on the severity of subsequent attacks, and the limited value of adhesions as barriers to the spread of infection. He commented on the collections of pus in the pelvis, right iliac fossa and upward which give rise to various states of toxemia, retrocecal abscess, retroperitoneal, lymph adenitis, pylephlebitis, liver abscess, etc., and especially on secondary operations for hernia or fecal fistula.

Dr. ERNEST LAPLACE, Philadelphia, agreed with Dr. Deaver as to the removal of the appendix in all cases.

Dr. J. E. SOMMERS, Jr., took exception to Dr. Deaver's advice and was inclined to favor Dr. Ochsner's starvation method in many cases.

Dr. A. JACOBI, New York, spoke on the question of appendicitis in children, and after relating the details of a recent fatal case which came under his observation, he spoke at some length on the importance and difficulty of diagnosing the disease, especially in children.

Dr. H. O. MARCY, Boston, agreed with Dr. Deaver, and said he did so after eighteen years' experience.

Dr. WILLIAM H. WATHEN, Louisville, spoke on the relation of gynecology to surgery and particularly in reference to appendicitis, at the same time taking exception to the free flushing advocated by Dr. Laplace.

Dr. A. J. OCHSNER detailed at some length his starvation method of treating appendicitis, and gave some illustrative cases with statistics.

Dr. JOHN B. MURPHY, Chicago, stated that his experience with appendicitis had been somewhat different from either Dr. Deaver's or Dr. Ochsner's.

Dr. JOSEPH PRICE and Dr. MORDECAI PRICE, Philadelphia, agreed with Dr. Deaver as to the necessity of immediate operation in all cases when seen early.

Dr. ROBERT T. MORRIS, New York, doubted the advisability of at all times removing the appendix when the abdomen was open for some other cause.

Dr. DEAVER closed the discussion by reiterating the advisability of at all times removing the appendix immediately upon making a diagnosis in every case when seen early.

THIRD DAY. — THURSDAY, JUNE 9.

THE ANATOMY OF INGUINAL HERNIA. ANDREWS'S OPERATION FOR RADICAL CURE.

Dr. D. N. EISENDRATH, Chicago, dealt with the general considerations on the anatomy of this subject, which he demonstrated by a very ingenious model, explaining the objects to be accomplished by a radical cure. He gave his experience with the Andrews operation and freely illustrated his paper by models and charts.

THREE YEARS' EXPERIENCE WITH THE AUTOPLASTIC SUTURE FOR HERNIA.

Dr. L. L. MCARTHUR, Chicago, gave a final report of his experience with this suture, and stated that three years' experience with its use in inguinal herniæ encouraged the continuance of its employment. As a result of trying it in ninety-three cases and as judged by the histologic findings in experimental work it had been shown that the transplanted tendon lived. He demonstrated this fact by an examination of the scar of a patient dead of a subsequent appendicitis a year after having an autoplastic suture.

Dr. W. P. Coley, of New York; Dr. E. W. Andrews, of Chicago; Dr. C. F. Stokes, Dr. J. C. Bloodgood, of Baltimore; Dr. H. O. Marcy, of Boston; Dr. A. D. Bevan, of Chicago; Dr. W. B. DeGarmo, of New York; Dr. Walker, of New York; Dr. Charles L. Leonard, Philadelphia, and Dr. E. W. Holmes, of Philadelphia, discussed these papers, all congratulating Dr. Andrews on his operation, Dr. Eisendrath on his success with it, and Drs. Eisendrath and McArthur closed the discussion.

SURGERY OF THE TRIFACIAL NERVE AND ITS GANGLIA.

Dr. JOHN B. MURPHY, Chicago, went very fully into this subject which he divided into five stages: (1) Resections of branches down to the cranial foramina; (2) Division of branches within the cranium, with efforts to occlude the foramina; (3) Removal of the Gasserian ganglion, with intracranial segments of nerve; (4) Extraction of sensory root, and (5) Intraneural injections, and made clinical reports with the result in eleven cases.

INTRACRANIAL NEURECTOMY FOR TRIGEMINAL NEURALGIA, CASES AND COMMENTS.

Dr. HARRY M. SHERMAN, San Francisco, gave a brief report of five operations on four patients, in three of which uneventful recoveries from the pain were secured. He mentioned some slight modifications in the incisions of the soft parts and of the bone, and recommended the pouring of salt solution into the skull before the suture to fill all vacant spaces and exclude the air.

SUMMARY OF THE FINAL RESULTS OF FOUR CASES OF DIVISION OF THE SENSORY ROOT FOR TIC DOULOUREUX.

Dr. CHARLES H. FRAZIER, Philadelphia, spoke of the theoretical advantages of this method over operative procedures and showed the immediate results obtained. He claimed to have had no evidence of recurrence, three, two and one years after operation.

Dr. Charles K. Mills, Philadelphia, Dr. William G. Spiller, Philadelphia; Dr. Robert F. Weir, New York; Dr. J. Shelton Horsley, Richmond, Va.; Dr. Cushing, Baltimore, and Dr. John B. Murphy, Chicago, discussed these papers from various points of view, the general conclusion being that the relief of the condition was not as yet an assured fact by any of the methods mentioned. Drs. Sherman, Murphy and Frazier closed the discussion.

LAMINECTOMY. A FURTHER CONTRIBUTION.

Dr. JOHN C. MUNRO, Boston, reported from twenty-five to thirty cases of laminectomy and pleaded for the simplification in the technic as being important in reducing the severity of the operation.

Dr. F. B. LUND, Boston, and Dr. CUSHING, Baltimore, complimented the author on his excellent results and heartily endorsed the points he made.

TREATMENT OF COLD ABSCESSES AND SINUSES IN TUBERCULOUS DISEASES OF BONE.

Dr. V. P. GIBNEY, New York, took up the routine surgical treatment of the day and dwelt extensively on the orthopedic treatment, bacteriological findings, value of asepsis from beginning to end and comparative results of the methods employed.

OLD UNREDUCED DISLOCATIONS.

Dr. DEFOREST WILLARD stated: (1) Early immediate diagnosis was the most important element in the prevention and treatment of all dislocations. With ether, the x-ray and anatomical and surgical knowledge, the displacement should always have been discovered by the surgeon. The only excuse for non-recognition would have been extreme injury in other portions of the body. (2) An unrecognized or unreduced dislocation should have been carefully examined under ether to discover the extent of adhesions and the possibility of effecting reduction without measures; failing in this, continuous extension in bed should be practiced for several weeks; the second attempt, without the application of extreme force, should be made, the permission of the patient having been previously obtained to permit of open operation if deemed necessary. (3) Open section should include the division of all muscular, tendinous, capsular and

bony obstacles to reduction. When the socket is filled up with dense fibrous tissue, such tissue should be excavated and the head of the bone placed *in situ*. (4) Partial or complete excision of the head and of fragments in case of fracture will frequently be necessitated. (5) In cases that have existed more than a year, or where the original injury had been extreme, operation should be avoided unless pressure upon nerves or blood vessels was seriously impairing the usefulness of the limb or giving pain. Resection should be reserved for bad late cases with pain and serious nerve symptoms. Sepsis was frequent on account of the severity and length of the operation. (6) Pain and disability were the two most important measures in arriving at a decision concerning operation. When a limb was useful in its new position, gave no pain or difficulty, it should be left alone. (7) In the after-treatment, muscular gymnastics, electricity and massage were very important measures and should be persistently employed.

Dr. A. F. Jonas, Omaha; Dr. Thomas, Scranton; Dr. A. D. Bevan, Chicago; Dr. Joseph A. Blake, New York; Dr. Vaughan of the Marine Hospital Service; Dr. Lord, Omaha, and Dr. Charles A. Powers, Denver, discussed this paper fully, and heartily endorsed what Dr. Willard had said, Dr. Willard closing.

CONSERVATIVE PERINEAL PROSTATECTOMY. REPORT OF FIFTY CASES.

Dr. Hugh H. Young, Baltimore, called especial attention to the absence of mortality and the simplicity of the procedure, many of the patients being over seventy-five and some over eighty years of age, and laid stress on the importance of cystoscopy and careful preliminary treatment.

PROSTATIC OBSTRUCTION.

Dr. Parker Syms, New York, read a fully illustrated paper on this subject.

PROSTATECTOMY IN GENERAL, ESPECIALLY BY THE PERINEAL ROUTE.

Dr. George Goodfellow, San Francisco, gave the indications for his adherence to this method, described his method of operating, referred to the mortality in seventy-five cases according to his method and gave the ultimate results of each.

IS IT WISE TO TRY TO MAKE ANY ONE OPERATIVE METHOD APPLY TO ALL PROSTATECTOMIES?

Dr. Eugene Fuller, New York, read this paper. The author opened the paper by stating that the results obtained by prostatectomy had put the operation on a firm footing. When the operation was first introduced numerous surgical makeshifts were brought forward to compete with the radical operation. Most of these had now been discarded, owing to the unsatisfactory results attending them and to the increasingly better results following prostatectomy at skilled hands. The criticism was made that most of the present writers on the subject concerned themselves only with the problem of operative removal of the prostate, paying little or no attention to the questions of after-treatment and general management. All prostatectomies were grouped under three headings: (1) Where the hypertrophy is removed through the employment of a suprapubic cystotomy; (2) where it is removed through the employment of a perineal cystotomy; and (3) where it is extracted along the path to a perineal dissection, the aim of which is to avoid opening the urinary tract or the rectum. Dr. Fuller stated that as far as the mere removal was concerned it could be done by any one of the three methods. He then discussed the *pros* and *cons* of the different methods. Few cases were found where the third method seemed advisable. The second method when performed according to the writer's ideas was advocated for most cases in connection with which there existed good expulsive force to the bladder. Where this was impaired and where serious lesions of the urinary tract existed the suprapubic operation was the one usually chosen. Attention was called to the fact that at present most writers showed a strong tendency to try to make some special form of the perineal operation apply to all cases and to entirely discard the suprapubic operation on the ground that it was either unnecessary or operatively extra hazardous. These objections were ably met. It was asserted that the suprapubic operation should in itself give no extra mortality if certain rules were observed in its performance, if the incision were properly sutured and drained, and if the surgical supervision of the after-treatment were efficient. The value of the suprapubic vesical drainage vent, a feature connected with the suprapubic operation, was especially dwelt upon. In fact, it was the establishment of such a vent that decided the writer in a certain class of cases to choose the suprapubic operation. In conclusion, a protest was entered against classing as true prostatectomy cases of middle-aged or even younger men, which represented simply inflammatory effusions in connection with the prostate or its periphery. In such cases an operator attempting prostatectomy would find nothing to enucleate, or for that matter to remove.

Dr. Orville Horwitz, Philadelphia; Dr. Robert H. M. Dawbarn, New York; Dr. John C. Munro, Boston; Dr. Martin B. Tinker, Ithaca; Dr. D. N. Eisendrath, Chicago, and Dr. Archibald McLaren, St. Paul, freely discussed these papers and endorsed most of what had been said.

KIDNEY STONE. DIAGNOSIS AND TREATMENT.

Dr. Arthur D. Bevan, Chicago, took up the question of etiology, symptoms, differential diagnosis, prognosis, technique of operative procedures and the question of recurrence after operation.

Dr. Charles L. Leonard, Philadelphia; Dr. James B. Bullitt, Louisville; Dr. Joseph A. Blake, New York; Dr. John B. Deaver, Philadelphia; Dr. H. H. Young, Baltimore; Dr. Winslow, Omaha; and Dr. Thomas, Scranton, agreed fully with what the author had said and congratulated him on his excellent deductions.

Fourth Day. — Friday, June 10.

Dr. I. V. Iglauer, Cincinnati, demonstrated a new etherizing apparatus.

THE TREATMENT OF FRACTURES OF THE PATELLA BY LATERAL SUTURES.

Dr. Joseph A. Blake, New York, dwelt fully on the anatomy of this subject and reported the results of eighteen operations, both as to union and as to function according to his method.

Dr. Gibbons, Scranton; Dr. Vaughan, of the Marine Hospital Service; Dr. C. O. Thienhaus, Cincinnati; Dr. J. F. Binnie, Kansas City; Dr. D. N. Eisendrath, Chicago; Dr. James B. Bullitt, Louisville; Dr. Lemon, Milwaukee; and Dr. Charles A. Powers, Denver, endorsed the methods employed by the author and mentioned various others they were in the habit of using under certain circumstances. Dr. Blake in closing gave a blackboard demonstration of some phases of his method.

SURGICAL TREATMENT OF CERTAIN CASES OF ARTHRITIS DEFORMANS.

Dr. MARTIN B. TINKER, Ithaca, N. Y.: Before beginning a discussion of this subject, it is necessary to keep in mind the exact character of the disease under consideration. He said the condition was not a subacute or chronic rheumatism or tuberculosis, but a distinct diseased condition characterized by its long course, with progressive involvement of many joints, which lead eventually to absolute disability from ankylosis. Many interesting suggestions he stated had been made as to the etiology of the affection. In some cases it followed severe nerve strain and the nervous element was no doubt an important factor. Disturbance of metabolism he stated was also always present, but these were probably only contributing factors. The infectious origin seemed most probable, as several cases had been observed in which the disease had developed directly after a severe infection. He stated pain, swelling and stiffness of the joints were the most important symptoms — the pain gradually ceased as the joints became fixed. The swelling at first was from effusion, but this would soon disappear, and later the enlargement was from bony or fibrous thickening. He stated that the use of tuberculin was of great value in the diagnosis in distinguishing it from tuberculosis, a condition with which it might be confused. In the treatment both palliative and operative measures should be considered; as a rule the general principle followed in the treatment of joint trouble, to put the joint at rest, was reversed, for if the joint was kept quiet, stiffening was certain to occur at once. Gymnastics, massage and passive motion were to be judiciously employed; baking at from 280 to 350° F. was of value, as were also the use of various forms of baths; general hygienic measures were also of importance. In the operative treatment forced motion under anesthesia was condemned for the stiffness was not from adhesions, but from bony deposits and change of the contour of the bones affected. Arthrotomy and excision of osteophytic deposits might be employed where the stiffness of the joint was dependent upon the presence of only one or two such bony prominences that lock the joint and where the acute symptoms had entirely subsided. Excision of the joint was indicated in cases of complete ankylosis, to restore motion, and often enabled the patient to feed and dress himself and perform other necessary duties impossible with an ankylosed joint. He thought operative treatment was limited to a comparatively few cases of this kind. The condition was generally a most pitiable one and the general condition was incurable.

Dr. VAUGHAN, of the Marine Hospital Service, and Dr. H. M. SHERMAN, San Francisco, partly agreed with the author in the points he made in his paper, but each called particular attention to various other methods which in their opinion would be likely to be at times preferable to employ. Dr. Tinker replied to their suggestions in closing.

IMPACTED FRACTURES OF THE NECK OF THE FEMUR.

Dr. LEMOYNE WILLS, Los Angeles, reported two interesting cases which he illustrated with radiographs. He laid particular attention on the marked difference in treatment in each case and to the good results obtained.

Dr. H. O. Sherman, San Francisco; Dr. Thomas, Scranton; Dr. William L. Rodman, Philadelphia; Dr. M. R. Crane, Vermont; Dr. D. N. Eisendrath, Chicago; Dr. James P. Bullitt, of Louisville, and Dr. Fenner, New Orleans, in discussing this paper spoke very emphatically on the question of the x-rays and their great uncertainty at the present day. All were agreed that too much reliance was placed in x-ray pictures and urged more care in other means of diagnosis, in which Dr. Wills coincided on closing.

FAT EMBOLISM OF LUNG, FOLLOWING FRACTURE, WITH REPORT OF TWO CASES.

Dr. F. GREGORY CONNELL, Leadville, Colo., reported two cases of fat embolism of the lung which followed fractures of the long bones, both of which recovered. In a study of the history of the subject he found that about two hundred and fifty cases had been reported, and of these not over a dozen had been contributed by American writers. The anatomy of the parts involved was reviewed, and among the causes other than fracture, were enumerated orthopedic operations, open operations upon bones and joints, surgical operations on structures, other than bone inflammation of bone or periosteum, laceration, bruising or suppuration of the fat containing soft parts, or extensive burns or scaldings, rupture of fatty liver and also causes that had arisen within the circulation, such as atheromatous changes of the vascular walls, etc. The symptomatology was considered at length; the milder form was rarely diagnosed, and was of little import; the acute and rapidly fatal form was rarely differentiated from shock and was often unsuspected. The ordinary form of fat embolism, that was recognized as such, usually presented the following symptoms: An interval of euphoria; lipuria or fat in the sputum; extreme debility, anxiety, malaise, somnolence, pallor, cyanosis; respiration, rapid and irregular, with dyspnea, cough, pain, hemoptysis, rales, edema, or consolation; pulse, feeble, irregular and rapid; temperature unreliable; loss or diminution of sensibility, and of the reflexes, pupils contracted, Cheyne-Stokes, respiration, spasm, convulsion, vomiting, paralysis or coma. Each of these were considered *pro* and *con*, but the temperature, which was perhaps the most perplexing and unsettled symptom of fat embolism, was gone into at length, and it was concluded that the temperature might be high — in 37 cases in which the temperature was given, collected from the literature, 29 had an elevation of the temperature while in the 8 the temperature was mentioned as being either normal or subnormal. The diagnosis during life was first made by Lucke, and in the same year, 1873, by Bergman; the first in America to diagnose the condition during life, was the late Christian Fenger, in 1879. Among the conditions more likely to be confused with fatty embolism, might be mentioned: Shock, septicemia, pulmonary embolism, and, less commonly, the effects of anesthetics, congestion of the lung, or kidneys, cerebral hemorrhage, concussion of the brain, atheroma of the coronary arteries. The prognosis was most uncertain, owing to the fact that the frequency of the condition was unknown. Fat embolism of a greater or lesser degree followed practically all fractures, but it gave rise to serious symptoms comparatively seldom. The fat in the circulation had no deleterious effect upon the blood, its sole action was a mechanical one, in obstructing the capillaries. The treatment was unsatisfactory, in fact, it might be said that there was no treatment. Prophylaxis would consist of gentle handling of the limb, so as to rupture as few fat cells as possible and then immobilization. After the symptoms were present, drainage, as it lessens the tension at the site of the injury, might be of advantage. But the closest attention should be given to the heart, and as the bulk of the fat is eliminated through the kidneys, attention should be given to these organs.

Case I. Compound comminuted fracture of the left tibia and fibula; no medical attention for nine hours after accident, rough transportation. On the fifth day respiratory symptoms appeared, temperature was high; on the sixth day a sudden and marked fall of temperature, and the onset of cerebral symptoms. Fat found in both urine and sputum. Symptoms persisted for five days and then gradually disappeared; ultimate recovery.

Case II. Compound fracture of the left femur; did well for fifteen days, then for one week had pulmonary symptoms of fat embolism, with lipuria, fat in the sputum, and an inguinal phlebitis. Apparent recovery, but on the forty-third day after the receipt of his injury, after sitting up for the third time, he had a return of all the embolic symptoms, which lasted for a week, terminating in recovery.

Drs. McKenzie, Portland; Lemon, Milwaukee; Jackson, Kansas City; Sommers, Omaha, and Joseph A. Blake, New York, agreed that too little attention had been paid to watching for this condition and too little importance had been attached to it.

Recent Literature.

Simon's Physiological Chemistry. A Text-Book of Physiological Chemistry. For Students and Practitioners of Medicine. By Charles E. Simon, M.D., late Resident Physician, Johns Hopkins Hospital; author of Simon's Clinical Diagnosis, etc. New (2d) edition. Revised and enlarged. Octavo, 500 pages. Philadelphia and New York. Lea Brothers & Co., Publishers. 1904.

The second edition of this excellent work shows a number of changes which are, for the most part, in keeping with the advance that has taken place in physiological chemistry in the last three years. The chapters on albumins, nitrogenous catabolism, and gastric and tryptic digestion have been rewritten and brought up to date. Some forty-eight laboratory exercises have been included in this edition in the form of an appendix. The real value of this addition is a question, for no doubt most teachers of this subject would prefer to outline such exercises as are best suited to the needs of their students. There is, however, very little to be adversely criticised in the book, and we can earnestly recommend it as a textbook and as a book of reference in the subject of physiological chemistry.

Elettricita Medica. By Dr. A. D. Bocciardo. 16mo. pp. xii, 201. With 54 illustrations and 9 plates. Milan: Ulrico Hoepli. 1904.

This charming little volume forms one of the extensive series of Hoepli "manuals," of which several dealing with medicine have already been noticed in these columns. It gives in condensed form the necessary facts, not only in regard to static, galvanic and faradic electricity, but also in regard to high frequency currents, Röntgen rays, radiotherapy and phototherapy. All unessential matter has been omitted, and the author has succeeded in his efforts to be clear and concise. The book is trustworthy, and would be of decided value to the student beginning the study of electricity in its medical relations.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, OCTOBER 20, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

Subscription Terms: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 and 29 Bromfield Street, Boston, Mass.

SMALLPOX INFECTION FROM ISOLATION HOSPITAL.

A decided opinion has been formulated among many English health authorities to the effect that smallpox has been spread by isolation hospitals in which large numbers of persons ill with that disease were being treated. At least a half dozen reports have been published within the past twenty-five years presenting the results of investigations upon this subject, those of Dr. Power and Dr. Barry upon the epidemics at Fulham (London) and Sheffield being the most noted.

So long ago as the close of the eighteenth century, Dr. Waterhouse of Cambridge appears to have believed in the possibility of aerial transmission of the infection of smallpox. He declared "that we have the clearest proof of the smallpox being communicated to the distance of several hundred rods, *viz.*, from the hospital at West Boston to several families in the neighborhood."

After all the evidence which has been presented, however, in support of the theory of aerial transmission, it is very difficult to exclude the effect of other modes of transmission by means of communication with the surrounding neighborhood through the medium of hospital employees, clothing, etc. Dr. John Glaister[1] has reviewed the whole subject very thoroughly in the *Journal of Hygiene.* He has very carefully reviewed the evidence presented by the serious epidemics of smallpox which have occurred in the last twenty-five years in English towns, notably in Fulham and Orsett (both London districts) and in Sheffield, Warrington and Leicester. His conclusions are that "the mere existence of a smallpox hospital in relatively close proximity to a populous neighborhood is a source of danger to the population, and tends to the spread of smallpox there-

[1] Journal of Hygiene. August, 1904, p. 218.

from, and that infection may be and has been conveyed to outsiders, both directly and mediately. The reasons for this conclusion are these: In the *first* place, and perhaps mainly, the hospital is the center, during an epidemic, of a large amount of traffic. Ambulance traffic to and from, visits of friends and relatives of those afflicted to inquiry room and to wards, under certain general precautions, to see friends or relatives whose lives are in danger, 'leakages' of various kinds from the hospital through the agency of the staff, workmen, tradesmen, cleaners and others, under circumstances of imperfect supervision, or from infringement of hospital regulations."

"If we examine the records of the foregoing places (where the aerial theory of convection has been invoked to account for the spread of disease in the surrounding population) abundant evidence of imperfect administration or structural deficiencies or of other factors will be found.

"So far most persons will agree: but when we critically examine the *second* proposition, *viz.*, that smallpox hospitals near to populations exert a special capability to spread infection by the atmosphere, we are met by special difficulties, because there must first be eliminated the possibilities of spread by ordinary means. This cannot be said to be a trifling difficulty; but it must be overcome before aerial convection may be considered at all. All those who have had practical acquaintance with the difficulties in certain classes of population, particularly of obtaining accurate information for the three days which are indicated by the dates of their sickening as the dates of their having contracted infection, realize how impossible this often is. Here the personal equation of the observer or inquirer comes into play. The memories of such persons are often at fault, and even if their memories are of the best, because of the possibilities of mediate infection, they may not be able to indicate any possible source of infection. Moreover, among the poorer classes of the population, information may be wilfully withheld for interested reasons, as it has been proved to be; ignorance regarding attack by the disease, because of its trifling symptoms, may exist; and there are the consequent chances of accidental relationships with unrecognized cases of the disease. All these are facts which are discoverable in epidemics."

After considering all the evidence relating to recent outbreaks of smallpox, including the questions of hospital accommodation and influence, the effect of the hospital ships upon the lower Thames, isolation of cases, the quarantining of "contacts," and the vaccination and revaccination of the environing population, Professor Glaister concludes: "The conclusion at which I have arrived from this critical study of smallpox epidemics with regard to the doctrine of aerial convection is that the doctrine has not been proved, that in some of the epidemics, the conclusion as to aerial evidence is blighted by the want of distinction between the hospital as a direct and indirect source of infection of those resident outside its walls, and that in others the doctrine has been suggested from the flimsiest evidence. To my mind, as indicative of proof against the doctrine, there are the different histories and experiences of institutional populations placed within the range of aerial influence, if it existed, which cumulatively compel me to say that no such aerial dissemination seemed to have existed."

On the other hand, the chief medical officer of the Local Government Board of England in his last report,[2] while treating of the occurrence of smallpox in the districts near the hospital ships on the lower Thames, says: "The operation of these ships in this way — certainly in 1901–2, if not always on previous occasions — can only be thought of as a matter of aerial transmission of infection."

The practical importance of this question is shown by the fact that several of the smaller Massachusetts cities have found themselves inadequately provided with hospitals properly located, and having suitable accommodations for such outbreaks of smallpox as have occurred within the past three years within their limits. When, therefore, the question of location and establishment arises, the subject should be carefully considered in all its bearings.

ETHER DAY AT THE MASSACHUSETTS HOSPITAL.

IT too often happens that events of historic importance are allowed to go unnoticed until the lapse of time makes an accurate account of their enactment impossible. Numerous occasions may be recalled in proof of this statement, but it will be sufficient to mention one only, namely, the inability to obtain to-day an accurate list of the men who actually took part in the memorable event at the Massachusetts General Hospital on Oct. 16, 1846. Paintings and illustrations of this first public demonstration of surgical anesthesia are numerous, but not one of them can be vouched for as representing the exact

[2] Thirty-second Annual Report. Supplement, for 1902–3, p. xxiv, London, 1904.

scene as far as the personnel of the actors are concerned. It was with commendable foresight that members of the staff of the Massachusetts General Hospital took steps at the semi-centennial celebration of this event in 1896 to set aside Oct. 16 of each year to be commemorated as Ether Day.

This year the anniversary was fittingly observed on Monday, Oct. 17. The old amphitheatre in the dome of the hospital was arranged as nearly as possible to correspond to its appearance on Oct. 16, 1846. An audience including many ladies, members of the staff, representatives of other hospitals, house officers and nurses taxed the historic room to its fullest capacity. Dr. J. Collins Warren, Moseley Professor of Surgery at the Harvard Medical School, and visiting surgeon to the Massachusetts General Hospital, made the address.

Professor Warren recited the history of the use of the various methods of producing anesthesia from the time of Sir Humphry Davy down to the time of Long, Wells and Morton. Long's mistake in not following up his early experience, Wells' failure before the class of medical students assembled in this same room, where Morton later succeeded, were all told in a way most pleasing and instructive.

There was a certain charm in hearing this surgeon, now about to close his connection with the hospital, standing in the very place his grandfather, Dr. John C. Warren, stood on Oct. 16, 1846, rehearsing the simple story of that great victory of science over pain. It seemed as if the venerable senior himself uttered those closing words, " Gentlemen, this is no humbug."

Professor Warren then gave a most interesting account of the origin and growth of the hospital. By means of lantern slides, the old building with its Bulfinch front and with its associated workshop, the Harvard Medical School, were admirably portrayed. The contrast of the days of hospital gangrene and those of Lister's triumph; the introduction of pavilion wards, and their replacement with modern sky scrapers, all carried the audience through the various stages of medical progress during the past three quarters of a century. Continuing the illustrations, the speaker showed the admirable equipment of the modern hospital, with its complete systematic card system, its well arranged and finely equipped wards and out-patient departments, its valuable library, and lastly the new laboratory, the result of the munificent gift of one hundred thousand dollars from friends of the hospital.

The great advantage of modern methods was a revelation to many who have not been intimately associated with hospital work. A general inspection of the buildings and grounds followed the close of Dr. Warren's address.

The lesson to be learned from this observance of Ether Day is whether the more general and widely spread notice of the day would not result in great good. There is no other discovery in medicine more genuinely American, no other in which every medical school and every hospital in the country could unite with more propriety, than in that which has been a free gift to all, — the use of ether in surgical anesthesia.

MEDICAL STANDARDS.

The daily press has been discussing at some length the action of a well-known French surgeon in charging what was regarded as an exorbitant fee under conditions which seem to controvert the best traditions of the profession. The circumstances briefly were that a French surgeon charged in advance an excessive fee for services in connection with a secret remedy, the patient being the wife of an American. We have no desire to discuss in detail the exact merits of the situation, but several matters are apparent, even from the possibly doubtful accounts which have reached us. First, there has been in the past, and it no doubt also obtains now, a distinct tendency to overcharge Americans for medical services rendered in certain foreign countries. The popular and often erroneous idea that an American must of necessity be wealthy has been taken advantage of in a way altogether detrimental to the best interests of the profession. We have no desire to maintain that such a custom has been universal, but that it exists in sporadic form cannot be questioned. Whether or not the surgeon in charge of the case to which we have alluded above was inspired by any such unworthy motive we do not know. The more questionable part of the proceeding lies in the fact that the fee was demanded and, as we understand it, paid in advance, and that the remedy to be administered was of a secret character. If these facts are true, certainly it is difficult to find justification for the action of the physician. Conceivable as it may be that at times a fee in advance is justified, the best opinion of the profession will certainly not countenance such a proceeding as a principle. It is also absolutely necessary that there should be no yielding on the part of the general profession

in the matter of publicity as applied to remedial agents. The agitation regarding the whole matter has been aroused by the entrance of a suit by the aggrieved husband against the surgeon. The case, it is said, will come before the January term of the Tribunal of the Seine, the object of the suit being recovery of the $20,000 said to have been paid for professional services which did not accomplish the results expected or promised. The results of the trial will be observed with interest by the profession everywhere. In the meantime the lapse of one man from the high standard ordinarily set should not blind the eyes of the laity to the fact that in general a standard of conduct relating to the financial relations existing between patient and physician has long been established by custom and precedent, at least in Anglo-Saxon countries, which finds no equal in other professional callings. Eventually, a certain class of Americans is likely to realize that one may go less far and fare better.

MEDICAL NOTES.

THE ASSOUAN CURE. — We regret that Mr. Stimson's letter on the "Assouan Cure, from a Layman's Point of View" appeared in our issue of Oct. 13 instead of in the issue of Oct. 20, in conjunction with Dr. F. Gordon Morrill's paper on the same subject. The two should have been published together.

A YELLOW FEVER EXPEDITION. — The Liverpool School of Tropical Medicine, according to *Science*, proposes to despatch a second yellow fever expedition to the Amazon in view of the necessity of investigating still further this malady. The late Dr. Walter Myers was selected by the school, together with Dr. Herbert Durham, to undertake an expedition to Para to investigate the disease, only a few years ago. Both members of the expedition were attacked by the malady and Dr. Myers died. The expedition will probably start at the end of the year.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Oct. 19, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 45, scarlatina 19, typhoid fever 22, measles 5, smallpox 0.

NEW BUILDING FOR MEDFIELD INSANE HOSPITAL. — Work has begun on a new building for the insane hospital at Medfield. It is to be devoted to noisy and disturbed patients, and it is hoped will be sufficiently commodious to accommodate such patients for many years to come. The building will be low, two stories in height, 125 feet long and 33 feet wide at its narrowest portion. Crossing the ends are to be placed wings measuring 121 feet in length and 33 feet in width. Rooms are arranged on each side of central corridors. The second story is practically identical with the first. It is hoped that the building will be ready for occupancy in about a year.

NEW YORK.

LECTURES ON DISEASES OF THE SKIN. The Governors of the New York Skin and Cancer Hospital announce that Dr. L. Duncan Bulkley will give another series, being the sixth, of clinical lectures on diseases of the skin at the hospital on Wednesday afternoons, beginning Nov. 2. To these lectures the medical profession at large is invited.

EXHIBITS OF NEW YORK CITY DEPARTMENTS AT ST. LOUIS. — It is announced from St. Louis that seven of the New York City departments making exhibits at the World's Fair have been awarded grand prizes, the highest award within the power of the Fair Commissioners, and three other departments, gold medals. The Health, Tenement-house, and Street Cleaning Departments were among those receiving the grand prizes.

DR. WIEGEL'S MISFORTUNE. — Much sympathy is expressed for Dr. Louis Weigel, the well-known electrical expert of Rochester, N. Y., who, in consequence of disease resulting from his prolonged work with the Roentgen rays, has had to suffer the amputation of his right hand and three fingers of his left hand. The operations were done at the City Hospital, Rochester, on Oct. 11, and among the surgeons present were Drs. Roswell Park of Buffalo and William B. Coley of New York.

DEATHS FROM WOOD ALCOHOL. — An investigation has shown that at least eighteen deaths within two weeks have been caused by wood alcohol, in a district on the west side of the city formerly known as Stryker's Farm. The wood alcohol was used for adulterating whiskey, and the authorities have succeeded in getting possession of a little printed book giving recipes for making doctored whiskeys and other kinds of liquor. The proprietor of one saloon has been arrested, and as soon as this fact became known the popular indignation was so great that a mob gathered and wrecked his place before the police were able to interfere. An analysis by Dr. Atkinson, chemist to the Department of Health, of the contents of the stomach of several of the

victims of the Stryker's Farm whiskey, has demonstrated the presence of wood alcohol in quantities sufficient to cause death.

Opening Address, New York University. — On Sept. 29, at the opening exercises of the medical department of New York University, Chancellor MacCracken made an address, in which he deplored the lack of interest in medical education on the part of the rich men of New York. He could count on his fingers, he said, every large sum given to medicine in the city during the last twenty years. Not more than two families or two individuals had given any one of the four regular schools a large gift. By large gift, he explained, he meant at least $100,000. He then went on to say: "What do I see here at First Avenue? A medical faculty that treated without a dollar of remuneration over one hundred thousand patients last year. The wealth of this city has not yet been persuaded to give this work enough endowment to pay a quarter of the expenses. I have personally stood in the offices of several multi-millionaires during the past year to beg money for this charity, and have received the reply that times were so bad that they did not feel able to give a dollar."

Monthly Mortality. — The weekly reports of the Health Department show that during the month of September the mortality in the city represented an annual death-rate of 17.03, as against 18.63 in August and 16.13 in September, 1903. The corrected death-rate, excluding non-residents and infants under one week old, was 16.17. Among the diseases which showed a decline in fatality were the following: The weekly average of deaths from diphtheria and croup decreased from 26.75 in August to 23 in September; the weekly average of deaths from measles, from 6 to 5; from epidemic cerebro-spinal meningitis, from 20.75 to 15.75; from pulmonary tuberculosis, from 144 to 120.75; from diarrheal diseases, from 318 to 227.5; from diarrheals under two years of age, from 286 to 192.75; from Bright's disease and nephritis, from 97 to 95.75; and from organic heart diseases, from 87.75 to 65. Among the diseases which showed an increased mortality were the following: The weekly average of deaths from whooping cough increased from 3.5 to 5.5; from typhoid fever, from 19.5 to 20.5; from pneumonia, from 43.5 to 53.75; from broncho-pneumonia, from 43.75 to 52; from acute bronchitis, from 14 to 18.5; and from cancer, from 49.75 to 57.5.

Miscellany.

FUNERAL OF PROFESSOR FINSEN.

The funeral of the late Professor Finsen took place on September 29. The service at Frederick Church was attended by the King of Denmark and the King of Hellenes, the Crown Prince of Denmark, the Princes Waldemar, Karl, and Hans, the entire cabinet and other high dignitaries, and several hundreds of doctors and students of the Copenhagen medical schools, as well as by many patients who have undergone treatment at the Finsen Light Institute. The German Emperor was represented by Prince Henry of Prussia. Queen Alexandra, the Danish Crown Princess, and the Princesses Victoria, Maud, and Thyra were also present, occupying seats in the transept. The coffin was hidden beneath a mass of beautiful wreaths, among which were tributes from King Edward and Queen Alexandra and other members of the royal family, the German Emperor and the German Imperial Chancellor. Sir William Goschen, the British Minister in Copenhagen, handed to the widow of Professor Finsen an autograph letter from King Edward expressing his Majesty's condolence with her in her bereavement. — *British Medical Journal.*

Correspondence.

A CARD CATALOGUE OF ANATOMY.

Anatomical Department, Harvard Medical School,
Boston, Oct. 13, 1904.

Mr. Editor: A part of the Anatomical Research Fund, which has been subscribed by generous friends of science, has been devoted to the preparation of a card catalogue of anatomical literature. This has been prepared during the past summer under my immediate supervision. I beg to trespass on your space to announce that it is now in my room at the Harvard Medical School and is at the service of members of the profession who may have occasion to consult it.

The catalogue contains some thirty-five hundred titles arranged according to subjects. It presents some peculiarities to which it seems well to call attention that its range of usefulness may be understood. I have assumed at least a superficial knowledge on the part of the user. It does not contain the names of textbooks nor of treatises; but is devoted chiefly to papers appearing in journals and in the publications of scientific bodies. There are also the titles of some monographs and inaugural dissertations. I chose the year 1883, that in which I became professor of anatomy, as the starting point, but there are some important titles which appeared earlier.

The catalogue includes no histology and but little embryology, the latter being such as is of evident anatomical application. Subjects which have been exhaustively treated in recent monographs containing copious bibliographies, are passed over lightly in the years covered by these works, as it seemed useless to duplicate a work which is accessible in my library. There is more or less anthropology and also philosophical anatomy. The section which will probably appear the weakest is that of the central nervous system, which is due chiefly to the fact that the works in that branch are to so great an extent in the domain of minute anatomy which is not included in the plan.

It is proposed to keep the catalogue up to date by the use of the fund by which it was started. It is a pleasure to me to put it at the service of scholars.

Very truly yours,
Thomas Dwight, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 8, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Diarrheal Diseases.
New York . .	3,908,644	1,174	388	31.09	9.17	2.89	2.21	10.82
Chicago . . .	2,021,086	—	—	—	—	—	—	—
Philadelphia	1,407,968	380	63	23.15	8.73	2.63	1.32	8.16
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	176	41	28.41	2.27	2.84	3.41	6.82
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	125	—	32.80	6.40	7.20	4.00	9.60
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee . .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence . .	196,744	54	14	20.37	5.56	1.85	1.85	12.96
Boston . . .	617,950	188	51	28.72	9.01	.53	4.25	10.10
Worcester . .	136,925	46	21	17.39	10.87	—	2.17	13.04
Fall River . .	119,349	44	18	43.10	4.54	—	2.27	29.53
Lowell . . .	104,402	23	10	21.74	13.04	4.35	—	8.69
Cambridge . .	100,998	26	11	53.84	11.54	—	—	30.77
Lynn	73,878	19	7	15.79	—	—	5.26	—
Lawrence . .	72,348	18	5	33.33	11.11	—	5.55	16.67
Springfield .	72,020	14	6	14.28	—	—	—	—
Somerville .	70,413	13	4	7.70	7.70	—	—	—
New Bedford	68,863	—	—	—	—	—	—	—
Holyoke . . .	50,338	17	6	23.53	11.76	—	5.88	5.88
Brockton . .	46,801	10	3	30.00	—	—	—	—
Newton . . .	39,310	6	2	83.35	—	16.67	—	16.67
Haverhill . .	39,061	10	4	30.00	—	—	10.00	10.00
Malden . . .	37,205	10	1	20.00	10.00	—	10.00	—
Salem	37,188	15	1	—	—	—	—	—
Chelsea . . .	36,499	10	8	—	20.00	—	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	12	3	16.67	8.33	8.33	—	8.33
Everett . . .	30,209	6	1	—	—	—	—	—
North Adams	29,201	3	1	—	—	—	—	—
Quincy . . .	26,798	7	—	42.90	—	14.30	—	—
Gloucester . .	26,121	—	—	—	—	—	—	—
Waltham . .	25,797	3	—	66.67	—	—	—	—
Brookline . .	23,576	—	—	—	—	—	—	—
Pittsfield . .	22,870	—	—	—	—	—	—	—
Medford . .	21,956	6	2	16.67	—	—	—	16.67
Chicopee . .	21,692	8	3	8.33	—	—	—	8.33
Northampton	20,314	6	1	—	—	—	—	—
Beverly . . .	15,807	1	1	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	2	0	—	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	4	1	25.00	—	—	—	—
Newburyport	14,478	4	0	—	25.00	—	—	—
Woburn . . .	14,315	1	—	—	—	—	—	—
Melrose . . .	13,819	2	1	—	—	—	—	—
Westfield . .	13,809	2	—	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	2	1	50.00	—	—	—	—
Revere . . .	13,609	7	2	—	14.30	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,324	1	1	—	—	—	—	—
Southbridge .	11,716	4	2	50.00	50.00	—	—	—
Watertown .	11,575	0	—	—	—	—	—	—
Weymouth .	11,350	1	0	—	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 2,460; under five years of age, 684; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 697; acute lung diseases 208, consumption 289, scarlet fever 11, whooping cough 3, cerebrospinal meningitis 17, smallpox 1, erysipelas 3, puerperal fever 1, measles 4, typhoid fever 58, diarrheal diseases 246, diphtheria and croup 64.

From whooping cough, Pittsburg 2, Holyoke 1. From measles, New York 3, Boston 1. From scarlet fever, New York 6, Philadelphia 2, Baltimore 2, Boston 1. From cerebrospinal meningitis, New York 10, Pittsburg, Boston, Worcester, Somerville, and Marlborough 1 each, Southbridge 2. From erysipelas, New York 1, Boston 2. From smallpox New York 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Sept. 24, the death-rate was 16.0. Deaths reported 4,688; acute diseases of the respiratory organs (London) 72, whooping cough 50, diphtheria 53, measles 37, smallpox 2, scarlet fever 24.

The death-rate ranged from 7.0 in Burton on Trent, to 25.3 in Handley; London 13.7, West Ham 16.5, Brighton 17.8, Plymouth 20.6, Bristol 10.9, Birmingham 16.6, Leicester 15.1, Nottingham 14.9, Liverpool 21.6, Bolton 24.6, Manchester 18.9, Salford 23.7, Halifax 11.6, Bradford 17.4, Leeds 15.3, Sheffield 18.4, Hull 18.7, Cardiff 14.8, Rhondda 19.6, Merthyr Tydfil 22.2, Handsworth 13.1, Wigan 16.6.

METEOROLOGICAL RECORD.

For the week ending October 8, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in Inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 2	29.52	54	62	47	64	46	55	S W	W	11	14	F.	C.	0
M. 3	29.89	51	58	44	66	60	63	W	N	11	8	C.	O.	0
T.. 4	30.24	52	61	43	66	63	64	W	S	8	8	C.	C.	0
W. 5	30.14	56	65	48	68	77	72	S W	S	6	10	C.	C.	0
T.. 6	30.14	50	60	40	84	48	66	N W	N	12	10	O.	C.	.27
F.. 7	30.51	42	49	35	60	45	52	N	S	14	9	C.	C.	0
S.. 8	30.39	47	56	38	68	76	72	S	S	9	8	F.	O.	T.
☞	30.12		59	42			63							.27

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING OCTOBER 5, 1904.

BANKS, C. E., surgeon. Granted extension of leave of absence for twelve days from Sept. 27. Oct. 1, 1904.

RICHARDSON, T. F., passed assistant surgeon. To proceed to Eagle Pass, Tex., for special temporary duty. Oct. 4, 1904.

TROTTER, F. E., passed assistant surgeon. Relieved from duty at Plague Laboratory, San Francisco, Cal., and temporarily assigned to exclusive duty in connection with the examination of aliens at San Francisco. Sept. 29, 1904.

LORD, C. E. D., assistant surgeon. Relieved from duty in connection with the exclusive examination of aliens at San Francisco, Cal., and directed to proceed to Ellis Island, New York, N. Y., and report to Surgeon G. W. Stoner for temporary duty. Sept. 29, 1904.

BOGGESS, J. S., assistant surgeon. Granted leave of absence for fifteen days from Oct. 16. Oct. 4, 1904.

RUCKER, W. C., assistant surgeon. Bureau letter of Sept. 12, granting Assistant Surgeon Rucker fourteen days' leave of absence from Sept. 15, amended so that said leave shall be effective Sept. 16; and Bureau telegram of Sept. 26, granting Assistant Surgeon Rucker three days' extension of leave of absence, revoked. Oct. 3, 1904.

COLLINS, G. L., assistant surgeon. Granted leave of absence for three days from Sept. 30, 1904, under paragraph 191 of the regulations.

TUTTLE, JAY, acting assistant surgeon. Granted leave of absence for four days from Sept. 19. Oct. 4, 1904.

WINN, C. K., acting assistant surgeon. Granted leave of absence for fourteen days from Sept. 25. Oct. 3, 1904.

MCDONALD, JEANETTE, medical inspectress. Granted leave of absence for three days from Sept. 25, 1904, under paragraph 210 of the regulations.

LAGRANGE, J. V., pharmacist. Granted leave of absence for seven days from Sept. 26, 1904, under paragraph 210 of the regulations.

SOCIETY NOTICE.

BOSTON SOCIETY OF MEDICAL SCIENCES: REPORT OF CANCER COMMITTEE.—The next meeting of the Boston Society of Medical Sciences will be held at the Harvard Medical School, on Tuesday evening, Oct. 25, at 8.15 P.M. The papers to be presented will make up the Third Annual Report of the Cancer Committee of the Harvard Medical School. The profession is invited to be present.

WILLIAM H. ROBEY, JR., Secretary.

RECENT DEATH.

FRANCIS BOOTT GREENOUGH, M.D., M.M.S.S., died in Brookline, Oct. 16, 1904, aged sixty-seven years.

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheater of the Boston City Hospital on Oct. 21, from 10 A.M. until 12.30 P.M.: Amputation of Thigh; Sarcoma of Maxilla; Malignant Disease of Abdomen; Ranula.

Original Articles.

HEMATURIA DUE TO THE BILHARZIA HEMATOBIA, WITH THE REPORT OF A CASE.*

BY RICHARD FROTHINGHAM O'NEIL, M.D.,
Assistant Surgeon to the Genito-Urinary Department, Boston Dispensary; Assistant Surgeon to St. Elizabeth's Hospital.

THE disease forming the subject of this paper being a very uncommon one in this country, the writer thought that a short description of the etiology, pathology, literature, etc., of the condition would be of interest. The following is therefore submitted:

Bilharzia disease (or as it is variously known as bilharziosis, endemic hematuria, blood water of the Boers, and hématurie bilharzienne) is the name given to the lesions produced in the human body by an animal parasite, the distoma hematobia, or, as it is more commonly known, the Bilharzia hematobia, after its discoverer, Professor Bilharz of Cairo.

The occurrence of hematuria and urinary calculus has long been recognized in Egypt, and we have records to that effect as far back as the fifteenth century. Hematuria was also said to have been common among the French troops in Egypt during the occupation by Napoleon in 1798.[1] It was not until 1851, however, that these phenomena were properly explained, when Professor Bilharz discovered and described the parasite, he being the first to recognize its clinical importance.

The parasite is a fluke or trematoid worm with distinct sexes. The male is described as being white and cylindrical in form (Manson),[2] measuring from 11 to 15 mm. in length and 1 mm. in breadth. It has an oral and ventral sucker placed close together. The cylindrical appearance is produced by the ventral infolding of the two sides of what would otherwise be a flat body. By this infolding a gynecophoric canal is formed in which the female is received during coitus.

The female is somewhat darker and considerably longer than the male (20 mm.), the body being filiform. The anterior and posterior ends remain free while the middle section is contained in the gynecophoric canal of the male. The genital opening of the sexes face each other and are placed immediately posterior to the ventral sucker.[3]

The eggs are oval in form and about 0.16 mm. long by 0.06 mm. in breadth, although they vary somewhat in size. They have a transparent envelope or shell with a distinct spine, generally at one end; in some cases it is lateral (see cut). The ova with the lateral spines occur only rarely in the urine.† In the reported case all the ova seen had terminal spines. Within the ovum is seen the embryo; it has a distinct border of its own and at times does not seem to fill the shell completely, especially at the ends, but is surrounded by fluid. The bulk of the embryo is made up of sarcode granules, but a canal may be traced from the beak into what seems to be a rudimentary stomach with a small glandular mass on each side of it. In the more mature ones the embryo may be seen to move the cephalic end with a jerky motion; with a high power the cilia may also be seen to move. By making gentle pressure on the cover glass the shell may be broken and the embryo observed while coming out.[7] (In this manner the embryo for the accompanying cut was obtained and the process was most interesting to watch.) The shape of the embryo at rest may be said to be somewhat oval with a blunt pointed extremity which is the head. It is richly provided with cilia and is very motile when released. It changes its shape considerably when swimming, becoming elongated when in rapid motion. They soon die in urine (twenty-four hours), but may be kept alive in fresh water for a few days. The mature ova will hatch rapidly in fresh water. Dr. Perry of the Harvard Medical School endeavored to make them grow in various media but without success.

(For a more complete description of the worm and embryo the reader is referred to the special works on Entozoa, particularly a book by Braun,[6] for a description of the worm, and to a paper in the *Journal of Bacteriology and Pathology*, by Dr. G. S. Brock[4] of the Transvaal for a very minute and elaborate description of the anatomy of the embryo.) No more is known of the life history of the embryo. Sonsino[17] at one time thought he had discovered the intermediate host in a small crustacean, which statement, I believe, he afterward contradicted. By analogy it may be assumed that the embryo is taken up by some intermediate host where it undergoes a certain stage of development, later becoming encysted, and, either free or with its host, is taken into man, where it develops to maturity.

Geographical Distribution.[8] — The parasite is found in almost all parts of Africa. In Egypt, especially in the region of the Lower Nile, it is most common, so common, in fact, that various observers estimate that about half of the native population of that region suffer from it. Greisinger and Bilharz report finding the worm 117 times out of 363 autopsies, and Sonsino 42 times in 91 autopsies.[1] It is also endemic in the eastern part of Africa, Zanzibar,[18] the Transvaal, the Cape, the Gold Coast, Tunis, Algeria, Natal and Abyssinia. Outside of Africa cases have been reported as occurring in Mauritius, Madagascar, Cyprus, Syria, India,[10] Mecca and Penang.[3] A case is also reported from the West Indies.[3] The cases met with on the continent of Europe, in the British Isles and in the United States are probably imported ones with the possible exception of those occurring in the Middle West, which will be referred to later on.

Etiology. — The exact method of infection of the human species with the disease is not definitely known, as the life and development of distoma outside the body is entirely unknown. The two most probable avenues of infection are, however, first, that the embryo is carried into the

*Presented before the American Urological Society, Atlantic City, June 9, 1904.

† Duncan reports a case where ova with lateral spines were found in the urine (Clinical Society Transactions, London, Vol. 35, p. 187).

system by drinking infected water, or possibly by eating shellfish or raw vegetables; second, by infection while bathing, through the skin or natural openings of the body. Both of these theories have their supporters and various arguments in their favor. Bilharz himself favoring the first method.

The most noteworthy fact with regard to infection through drinking water is that the people of the large cities, like Cairo and Alexandria, suffer very rarely in comparison with the country people who drink water from the pools and rivers while at work. It is said that Europeans escape the disease to a large degree because they are, as a rule, very careful about their drinking water. (Sonsino, Scheube.[1])

With regard to the infection during bathing, Dr. Brock [4] says he is convinced that in the Transvaal at least many cases are infected in this way. He says in explanation of this that most cases occur in boys from six to sixteen years of age who bathe constantly in the rivers and ponds, sometimes spending the greater part of the day, in the water, while the Boer girls, who seldom bathe,[1] are rarely affected, both being exposed to an equal danger from drinking water. So common is the hematuria among the Boer boys that the more ignorant of the natives believe the loss of blood to be physiological.

Dr. Allen believes that the long prepuce of boys favors infection through the urethra. Loose (Manson) has recently expressed the opinion that the ciliated embryo enters the body directly by perforation of the skin.[11] It has been observed in Egypt that the natives who work in the fields up to their knees in water for a great part of the time are more liable to have the disease than those who do not follow agricultural pursuits. This might mean, however, that they are more exposed to the temptation of drinking bad water. It would seem that there is good foundation for the theory of infection while bathing, although it is always possible to swallow some water while so doing. In no case has a man been known to have transmitted the disease to his wife.

The period of incubation is difficult to determine; according to Brock[4] it is four months.

Pathology. — Although the lesions in this disease are not entirely confined to the genito-urinary tract, this system, in a large majority of cases, is the one which suffers, and it is with this tract that the pathology has mainly to deal. The adult worm is found most often in the portal system, either in the main vein or some of its tributaries, the most common being those of the urinary apparatus and the rectum. They have been found, also, in the inferior vena cava and, rarely, free in the urinary passages. They may be in large numbers, Kartulas reporting a case in which three hundred were found. (Finding them most often in the portal system would seem to favor the idea that they were taken into the body by way of the stomach. Finding them in the systemic veins as well could be explained by the anastomosis between the mesenteric and the internal iliac through the hemorrhoidal branches.[4]) The adult worm itself does not seem to cause any particular trouble, all the lesions being due to the deposit of the ova in the tissues. In whatever manner the worm gets into the circulation, at certain times they descend in pairs into the smaller branches of the aforementioned veins and the female deposits her eggs in great numbers. They finally rupture the vein, escaping into the surrounding tissue and there form the nuclei for inflammatory changes. These collections of ova and the subsequent changes which they induce were called " Bilharzial Infarctions " by Bilharz. When one of these infarcts ruptures into the urinary passages or the rectum a hemorrhage of greater or less extent occurs, which gives rise to the hematuria so characteristic of the disease, and to the finding of large numbers of the ova in the urine and feces.

Both clinically and post-mortem, the urinary bladder is found to be most often affected. Milton[9] found this organ diseased in 64% of a series of 930 cases, the lesions being principally in the sub-mucous and mucous coats. They consist in the milder cases of congested and ecchymosed patches, varying in size from one-fourth to one-half inch in diameter, covered with mucus containing many ova. (In my case these patches could be very beautifully seen with the cystoscope). They are generally on the posterior part of the bladder. As the disease advances the lesions take the form of vegetations and excrescences which become encrusted with urinary salts and must not be mistaken for calculi with the stone searcher. The capacity of the organ becomes reduced, its walls thickened and the outgrowths may fill the entire viscus; in some cases, however, the bladder is dilated. These changes taking place as well in the ureters and pelves of the kidneys, together with the formation of urinary calculi, which is very common in the disease, give rise to all manner of urinary lesions, among the more serious of which are dilated ureter, hydro- and pyo-nephrosis, cystic kidney, renal abscess and nephritis. Abscess and sinus formations are also quite common in the advanced cases. Urinary fistulæ are most commonly scrotal, perineal or in the glans, more rarely in the thigh, buttock or suprapubic regions. The seminal vesicles and the prostate are often affected. The lesions in the rectum are similar to those in the bladder, generally taking the form of excrescences.

The ova have been found in other parts of the body,‡ in the liver,[5] giving a form of cirrhosis; in the lungs, giving rise at times to hemoptysis. They are said to cause certain skin lesions, and have been found in gallstones. The female genitals are occasionally affected. The disease occurs on the labia majora in the form of excrescences; in the uterus, in the form of polypi protruding from the cervix.[9] According to Milton, disease of the uterus is not found without disease of the vulva. There is generally present a sero-sanguinous discharge containing ova.

‡ A curious case is reported by Cureton and Webb (Lancet, 1899, Vol. I, p. 156) where at a post-mortem they found the appendix enlarged and nodular; on section the nodules showed the presence of the ova. There were no symptoms, death being due to another cause.

Carcinoma and adenoma have been reported following the disease (Kartulis).

The Blood. — Bilharzia disease, in common with other parasitic diseases, presents some changes in the blood, the most conspicuous one being the altered proportion of eosinophiles. Coles [12] was the first to suggest this condition, and he reports a case with 20% of eosinophiles. Russel [13] follows with another case, the average of three examinations being 29%. The next case is reported by Manson [3] with 12%. Then follows a very careful study of fifty consecutive cases by Douglas and Hardy [14] of the white cells found in the blood and urine. These results are, first, that all cases seem to have a leucocytosis, and, second, that in all cases but one there was an eosinophilia, the average being 16.48%. (The highest count being 40% and the lowest 1.3%.) With regard to the urine, they found the number of ova and the amount of blood varied greatly in different cases, and on different days in the same case, that there were many leucocytes in the urinary sediment, and that the greater number of these were eosinophiles.§ (This last observation is true of the case herein reported.) Balfour [15] reports three cases with an average of 16.8%, Pool [26] a case of 9.5%, and the writer a case with 8.4%. This makes a series of fifty-eight cases, in all but one of which the eosinophiles were increased in number. The average of the eight odd cases is 16.34%, which is practically the same as the average of 16.48% for the fifty. In most of the cases the increase seemed to be at the expense of the polymorphonuclears. It would seem that this series of cases is large enough to justify the statement that eosinophilia is the rule in Bilharzia disease.

Diagnosis and symptoms. — The diagnosis is absolutely established by finding the ova of the parasite in the urine or feces of the patient, or in calculi or masses of tissue which have been removed. After once seen they are easy of recognition.

The most constant and characteristic symptom of the disease is hematuria. When there is a good deal of hemorrhage the urine is entirely bloody, but generally the blood is confined to the last few drops voided, being due to the rupture of some of the infarcted areas by the final contraction of the bladder. The urine, in a moderate case on being passed, is generally slightly turbid (may be blood-tinted) and contains shreds resembling those of a mild urethero-cystitis. The sediment settles rather quickly leaving a normal looking urine. In the sediment are blood, pus and the ova, together with epithelial cells and urinary crystals, mostly uric acid and calcic oxalate. The reaction is acid at first and there may be a slight trace of albumin.

In the early days of the disease, and in light cases, there is no pain, in fact many cases have no other symptom but hematuria, which may be constant, intermittent, or so slight as to be detected only by the aid of a microscope. The hematuria is almost always made worse by exercise.

§ This may also be due to the fact that the eosinophiles are found increased in various inflammations of the lower genito-urinary tract, as cystitis, prostatitis, etc. (Cabot.)

As the case progresses signs of inflammation of the urinary tract appear, the urine containing more mucus, blood and pus, and micturition becoming more frequent, itching or tickling at first, then burning, and later on painful, especially if small clots of blood or calculi have formed. Acute retention occasionally takes place from a clot or stone blocking the urethra. There may be attacks of renal colic from the same conditions in the ureters. In the more advanced stages of the disease the bladder becomes the site of vegetations and calculi are formed. Urinary fistula and abscess formation are common. The seminal vesicle and prostate are often involved, the semen containing blood and ova in the former condition. In involvement of the prostate the urinary symptoms are increased, and the gland, by rectum, may be felt to be enlarged.

The symptoms of invasion of the rectum are straining and frequency of defecation with the passage of blood accompanied by tenesmus, later prolapse of the mucous membrane and the formation of the characteristic vegetations.

As a rule death occurs from anemia or exhaustion dependent upon long continued hemorrhages and frequent attacks of pain, or as a result of some grave urinary disorder ending in uremia or septic infection.

Prognosis. — The disease varies in intensity in different localities, being much more severe in Egypt than in the Transvaal. In the latter location the disease is largely confined to boys from six to sixteen years old, at which age the hematuria disappears and the patient believes himself well. Careful examination will generally, however, detect the ova and the patient may, a number of years later, suffer from stone. Although a number of cases never go beyond the hematuria, still the prognosis should be guarded, the disease itself not being so fatal as the chain of complications to which it may give rise. To show how light the disease may be Milton [9] reports that in the examination of one hundred patients on the medical service in the Kasr-el-Aini Hospital, in Cairo, the ova were found in thirty-five, only two of whom complained of any symptoms. According to Brock, patients with the disease are not taken by Life Insurance companies. The life of the worm is known to be a long one, Dr. Hanford [16] reporting a case where the patient was having an occasional hematuria eight years after infection, there being no re-infection.

The treatment of the condition is unfortunately most unsatisfactory, and must of necessity be confined to maintaining the general health, and treating the symptoms and complications which arise. The deep location of the parent worm rendering any anthelmintic treatment of no value. According to more recent writers the hematuria is best met with salol and methylene blue. The latter is said to cause the death of the embryo in a short time in cover glass preparations. It is given in 4 gr. doses three times a day. If there is irritation or smarting of micturition, copaiba, santal oil or benzoic acid are of decided value. Cystogen and urotropin are useful as

urinary antiseptics. Male fern is recommended by Milton, and santonin [18] by other observers. If the hematuria is severe or cystitis is present, the bladder may be washed out with some bland solution, as boric acid, weak nitrate of silver, or possibly a solution of adrenalin chloride $\frac{1}{10,000}$ might prove of value. The solutions should be bland as the bladder is sensitive. Fistulæ and calculi are to be treated surgically. Milton advises litholapaxy for the latter when possible, as cutting operations are not particularly well borne. In the latter stage of the disease drainage of the bladder may become necessary. In the rectum, vegetations should be removed when possible. According to Milton, a solution of the chloride of zinc 1 to 40 will give relief as an application when the excrescences are too numerous for removal. The anemia is to be met with iron and the general hygiene looked after. The patient should be removed from the country to avoid re-infection.

Prophylaxis, is very much handicapped by the fact that the life history of the parasite is unknown. In infected districts, however, the drinking water supply should be above question, and if any doubt exists as to its purity the water should be boiled or filtered, and raw vegetables should be carefully washed. The urine and the feces of the patients should be rendered harmless.

Report of case. — J. B., twenty-four years of age, printer. Presented himself at the Urinary Clinic of the Boston Dispensary on March 2, 1904, with the following history: Personal history — One attack of gonorrhea five years ago, left testicle was then swollen. Without any reason that he could give testicle swelled again last year. For the last three years he has passed blood every day, once or twice a day, at the end of micturition, varying from a couple to a number of drops. It occurs at no particular time of day. There is no frequency or smarting or any trouble with micturition.

Examination. — Well developed and nourished young man, a trifle pale, nothing abnormal found except left epididymis has a tender nodule in upper end. Prostate normal. Left vesicle full, not tender. Nothing felt in renal region. Urine, very small quantity, slightly turbid with few shreds. It was not examined at this visit. Patient was given cystogen, gr. v, three times a day. To return for further examination. (Tumor of the bladder was considered the probable diagnosis.) He came back in twelve days much improved as to the frequency of the hematuria. The urine was normal looking after a moderate flocculent sediment had settled. *Examination.* — Normal color; acid; sp. gr., 1,025; albumen, slight trace; sediment: pus, blood, crystals of calcic oxalate, and a number of large oval bodies, some of which showed a jerky motion in one end. They were diagnosed as some kind of parasite, and on reading the subject up they were recognized as the ova of the Bilharzia.

On further questioning, the patient said that he had been in South Africa, in the British infantry, during the Boer war for eighteen months, and had had no trouble for a year, when one day at mess he felt a burning and itching in the perineum, and later frequency of micturition set in and he began to pass blood. He said that on several occasions he had drunk very foul water. On his next visit he was examined with a cystoscope, when the bladder showed a membranous cystitis; fragments of tissue could be seen waving from the bladder wall in the fluid (very like seaweed under water). There were also a number of small hemorrhagic areas mostly about the left ureter and posterior part of the bladder.

The day after the cystoscopy he passed more blood than usual. According to his statement he is better than he has been at any time during the trouble, sometimes seeing the blood only once a week or once in a few days. He has no other symptoms, except pain in the left epididymis (whether this is due to the same cause I cannot say, but think it not unlikely). He has had no treatment but cystogen and urotropin. Ten weeks after his first visit he passed a perfectly normal looking urine in which only a few ova could be found. He has occasional hematuria, which is made worse by exercise.

The blood examination by Dr. W. H. Smith, at 8 P.M. is:

Reds, 5,212,000	Whites, 4,400
(Differential count of 500 cells)	
Polymorphonuclears	45.6%
Lymphocytes	45.8%
Eosinophiles	8.4%
Mast cells	.2%

No achromia, no variation in size, no glandular degeneration.

Three months after his first visit he sent for me early in the morning, his wife saying that he had suffered intense pain all night in the left back and loin. On reaching his house I found him completely relieved, he having passed a small, very sharp, uric acid calculus; no ova could be found as nuclei. The urine was normal.

The only reference to cases of the disease occurring in the United States, that the writer has been able to find, are briefly as follows: They are five in number, three being imported cases and two seem to have originated in this country. There is also a case reported where the condition was supposed to exist, but I do not think the diagnosis was correct.

The first case reported, by Dr. Booth of Sparta, Ill.,[19] in 1882, is that of a young woman of twenty-eight. She had difficulty in micturition and had passed blood. He reports finding in the urine ova with spines, ciliated embryos and mature worms. The description is not good. There is no satisfactory etiology given. I can find no case reported where the adult worm had been found alive in urine, and it is only with extreme rarity that it is found in the urinary passages at all. It has, however, been found alive in masses of papillomatous tissue and in fibrous tissue lining urinary fistulæ, Madden reporting six such cases.[22]

The next case is reported by Dr. B. F. Curtis [20] of New York, in 1896. He performed a suprapubic operation for a tumor of the bladder in a man of twenty-nine. The patient had served in the British Army in Egypt ten years before and had been subject to hematuria. The diagnosis in this case was made from microscopic examination of the tissue removed. The result was good.

The third case is reported first by Brooks [23] in 1897, a month later by Sondern [24] and referred to by Porter [25] in the International Clinics. The patient had lived two years in Africa. His only symptom was the characteristic hematuria.

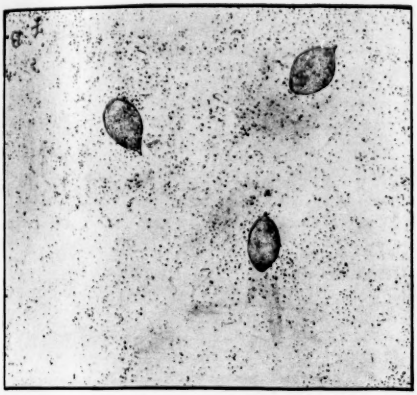


FIG. 1. (Leitz oc. 4, obj. 3.) Urinary sediment showing ova. Low power.

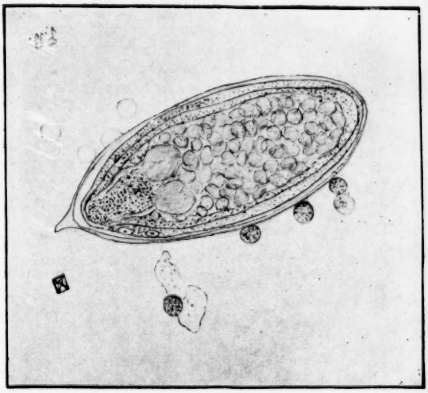


FIG. 3. (Zeiss oc. 6, obj. 2 mm.) Ovum. High power.

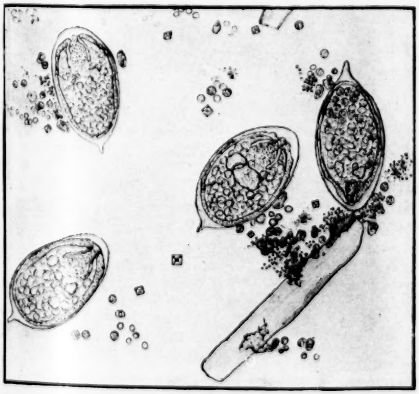


FIG. 2. (Zeiss oc. 4, obj. 8 mm.) Note size of ova compared with other elements in sediment, also terminal spines.

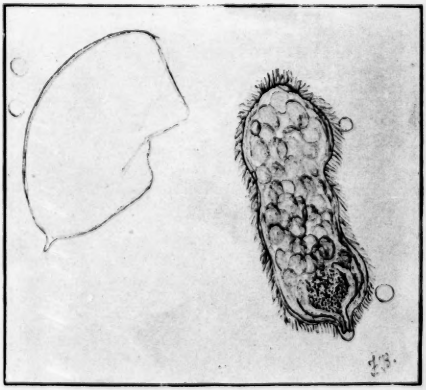


FIG. 4. (Leitz oc. 4, obj. 1–12.) Free swimming embryo showing cilia, also broken envelope.

The next curious case was reported in February, 1900, by Dr. Walker [21] of Evansville, Ind., his patient being a woman of twenty-eight, whose home was not far from the place where Dr. Booth's patient lived. She had suffered from severe pain in the bladder and the left side with hematuria. She also had occasional discharge of fluid from some cavity connecting with the bladder. This fluid was found to contain the ova and embryos of the parasite.

This case was again recently reported by Drs. T. N. and H. N. Rafferty of Robinson, Ill., who had her under observation from April, 1900, to September, 1901.[33] The patient was heard from not long ago and was still having the same trouble.

In June, 1900, Dr. Lewis [22] of Mt. Carmel, Ind., referred to the following case as one of Bilharzia disease: The patient is a woman thirty-two years of age. She had painful and frequent micturition for some time. The urine contained much pus and a number of bright red very motile worms about one-sixth of an inch long. Towards evening she passed large numbers of them, they sometimes coming away in clumps of twenty or thirty. The bladder was indurated and tender. Although some of the symptoms are suggestive, no mention is made of finding the ova, and the description of the worm is certainly not characteristic. The only point in the etiology is that the patient used to eat largely of some imported figs known as Turkish. The case is probably not one of Bilharzia disease.‖

The last case is reported by Dr. Pool [26] of New York, in April, 1903, and is that of a young Algerian, thirty years of age, who had visited some of the infected countries and presented the characteristic hematuria. As cases of this kind will undoubtedly occur from time to time in this country their correct diagnosis is of importance, and the writer suggests that a careful search be made for the ova of the parasite in any case suffering from hematuria, calculus or urinary fistulæ who has been a resident in or a visitor to the infected countries.

The literature of the condition is quite extensive, the writer having looked over from forty-five to fifty different articles and reports of cases, most of them naturally being in foreign publications. Besides the two articles already referred to, those interested in the subject will find good accounts of the disease in the "Diseases of Warm Countries," by Scheube [1] (which has an excellent bibliography), an article by Guillemard, in Allbutt's "System of Medicine," [27] and one by Kartulas.[28] Among the latest publications are three full lectures by Milton of Cairo, in the *Journal of Tropical Medicine*,[29] an article by Wallace in the *Scottish Medical Journal*,[30] and one by Lelean, in the *Transactions of the Medical Society of London*.[31]

The excellent drawings accompanying this article were made from fresh specimens by Miss Byrnes of the Harvard Medical School.

BIBLIOGRAPHY.

[1] Scheube: Diseases of Warm Countries.
[2] Manson: Tropical Diseases.
[3] Manson: British Medical Journal, 1902, v. ii, p. 1894.
[4] Brock: G. S. Journal of Pathology and Bacteriology, v. ii, 1893–94, p. 52.
[5] Symmers, W. St. C.: Journal of Pathology and Bacteriology, v. ix, December, 1903.
[6] Braun, Max: Die Thierischen Parasiten des Menschen.
[7] Dight: Ninth International Medical Cong., Washington, v. iii, p. 420.
[8] Clemow: The Geography of Disease.
[9] Milton: Lancet, 1903, v. i, p. 866.
[10] Powell: British Medical Journal, 1903, v. i, pp. 490–772.
[11] Loose: British Medical Journal, 1903, v. i, pp. 262–789.
[12] Coles: British Medical Journal, 1903, v. i, pp. 1137, May, 1902.
[13] Russel: Lancet, December, 1902, v. ii, pp. 1540.
[14] Douglas and Hardy: Lancet, October, 1903, v. ii, p. 1009.
[15] Balfour: Lancet, December, 1903, v. ii, p. 1649.
[16] Hanford: Lancet, Dec. 16, 1893.
[17] Sonsino: Lancet, Sept. 9, 1893, p. 621.
[18] Petrie: British Medical Journal, 1903, v. ii, p. 133.
[19] Booth, D. S.: Western Medical Reporter, 1903, v. iv, No. 3, 1882, March 15.
[20] Curtis, B. F.: Annals of Surgery, v. xxiii, p. 56, Oct. 23, 1895.
[21] Walker, E.: Journal of American Medical Association, Feb. 17, 1900.
[22] Lewis, R. F.: New York Medical Journal, June 30, 1900.
[23] Brooks, H. T.: New York Medical Record, April 3, 1897.
[24] Sondern, F. E.: New York Medical News, May 1, 1897.
[25] Porter, W. H.: International Clinic, Philadelphia, v. iii, p. 124, 1897.
[26] Pool, E. H.: Proceedings of the New York Pathological Society, April, 1903.
[27] Guillemard: Allbutt's System of Medicine, New York, 1897, v. ii, p. 1091.
[28] Kartulas: Arch. für. Path. Anat. und Phys., Berlin, 1898, v. 152, p. 474.
[29] Milton: Journal of Tropical Medicine, 1902, v. v, p. 165, 191, 200, 213.
[30] Wallace: Scottish Medical Journal, 1901, v. viii, p. 121.
[31] Lelean: Trans. Medical Society of London, 1902, v. xxv, p. 259.
[32] Madden, F. C.: Journal of Tropical Medicine, 1901, v. iv, p. 143.
[33] Rafferty: Medical Record, New York, June 4, 1904.

‖ The Distoma heterophyes is a small red worm.

SOME OBSERVATIONS ON THE OCCURRENCE OF BROADBENT'S SIGN.*

BY ALICE WELD TALLANT, M.D., BOSTON.

THE so-called Broadbent's sign, or the systolic retraction of the lower ribs in the left back, has been given so important a place in the diagnosis of adherent pericardium that it is worth while to consider its significance and the frequency of its occurrence.

In 1895, Walter Broadbent [1] published a report of four cases diagnosed as adherent pericardium, in all of which there was "visible retraction, synchronous with the cardiac systole, of the left back in the region of the eleventh and twelfth ribs; in three, also, systolic retraction of less degree in the same region of the right back." Although he states that this sign had long been pointed out by Sir William Broadbent, he refers to it in the title of his article as "an unpublished physical sign," and I have found no reference to it before 1895.

A year later, in 1896, Dr. John F. H. Broadbent [2] published his monograph on "Adherent Pericardium." He takes up this point much more in detail, and it is with his name that the sign is associated in most of the textbooks. In his own words, "a most important sign of adherent pericardium" is "a marked systolic retraction of some of the lower ribs on the lateral or posterior aspect of the thorax," which he further describes as "a tug on the false ribs during the cardiac systole, and a sharp rebound during diastole, which can be felt as well as seen when the hand is laid flat on the chest wall at the spot." The phenomenon is due, in his opinion, to adhesions of the pericardium to the muscular parts of the diaphragm, which are dragged upward and inward with the heart's contraction, thereby

* From Dr. Richard C. Cabot's clinic at the Massachusetts General Hospital.

pulling on the points of attachment of the digitations of the diaphragm to the lower ribs and costal cartilages.

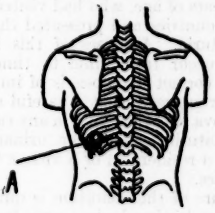
The value of this sign in the diagnosis of adherent pericardium has been quickly recognized, until now it is frequently mentioned as one of the most important signs of this condition. It is curious, however, that the different writers lay so little stress upon the pull on the ribs, and, indeed, often speak of the retraction as being noticed in the intercostal spaces, whereas John Broadbent, in his description, does not use the word "interspace," but mentions the tug on the ribs only. Butler [3] finds the systolic tug "over the eleventh and twelfth ribs posteriorly;" Tyson [4] describes it as "communicated through the adherent diaphragm to its points of attachment, especially the left side behind, between the eleventh and twelfth ribs." Cabot [5] refers to it as "a systolic retraction of the chest wall . . . in the region of the eleventh and twelfth ribs in the left back," and again, in summarizing, as "systolic retraction of the lower intercostal spaces in the left axilla and left back." Gibson [6] mentions "a drawing in of the intercostal spaces . . . in the lateral as well as posterior part of the chest, as insisted on by the younger Broadbent." Babcock,[7] who considers it a "very significant" sign, calls it a "systolic sinking or drawing inward of the tenth and eleventh interspaces below the angle of the left scapula, and occasionally of the ribs." In his recently published textbook,[8] however, he makes no mention of the pull on the ribs.

Broadbent's explanation of the cause of this retraction has been readily accepted, and is apparently a reasonable one. Under normal conditions the pericardium is closely adherent to the central tendon of the diaphragm, and only loosely connected by areolar tissue with the muscular fibres on the left side. When adhesions form between the pericardium and this latter fleshy part, the heart will pull on the diaphragm with each systole, and if it be powerful enough, the tug will be seen at those points of attachment of the diaphragm which are least fixed, namely, the false ribs and the tissues between them.

Since Broadbent's sign has been so widely accepted, it must have been seen in many cases by different observers. Few of these cases have found their way into the literature, however. Churton,[9] in 1897, reported a case of adherent pericardium in which the diagnosis (later confirmed by autopsy) was made during life by the discovery of Broadbent's sign, the eleventh rib on the left side being drawn in at each systole. Camac,[10] in 1898, also reported a single case in which the sign was present.

As Camac [10] suggests, Broadbent himself implies that the retraction is not a constant thing, when he speaks of the sign as one which "may sometimes be seen," and is most important "when found." Sir William Broadbent [11] believes that in the cases which show it, the heart is usually hypertrophied from valvular disease, and this was certainly true of all four of Walter Broadbent's cases. Swift,[12] in a series of eighteen cases of adherent pericardium in children, the diagnosis in every case confirmed by autopsy, was unable to find Broadbent's sign in a single one. This absence of the phenomenon is the more surprising, because in all the cases there was a well-marked systolic drawing in of the intercostal spaces anteriorly. Other writers [13] [14] have reported cases without mentioning Broadbent's sign, but it is impossible to say whether it may not have been present, since its absence is not noted. For example, Babcock,[7] in the paper to which reference has already been made, gives three illustrative cases of adherent pericardium, but does not speak of the presence or absence of this retraction. Still more noticeable is the fact that John Broadbent himself, in his series of cases, does not refer to the sign in any way.

While the absence of this sign in undoubted cases of adherent pericardium has thus been noted, its occurrence in other conditions has received less attention, although as long ago as 1898 Sir William Broadbent [15] is reported as stating that "similar tugging had been observed in cases of hypertrophy without adhesion." In 1900, Hoover [16] is reported as having seen a case of aortic insufficiency in which this retraction could be seen to move an entire rib. At the suggestion of Dr. Richard C. Cabot, a number of cases of various kinds have been examined in his clinic at the Massachusetts General Hospital, with reference to this point, and the results of these observations will be found tabulated below.



A = area where retraction is most easily seen and most frequently found.

Dr. Broadbent [2] states that "this phenomenon is best seen when the patient is sitting up in a good light, and the movements of the chest are carefully observed from a short distance off, first from the front and then from the lateral aspect." In my experience a tangential light brings out any movement of the chest wall more clearly. Sometimes it is more readily seen when the light comes directly from the left side, but in most cases the patient is directed to stand with his right side toward the window, turning slightly to the left, so that the light strikes diagonally across his back. In case of doubt as to the

presence of retraction at a certain spot, if a mark be made there with ink or a skin pencil, any movement in that area is more easily appreciated. The place to look for the retraction is about the tenth or eleventh intercostal space in a line with the angle of the scapula (area marked "A" in the accompanying diagram). When it is very slight the patient should be told to hold his breath, so that the respiratory movements may not obscure it.

In all 130 cases were examined. Of these 81 gave absolutely negative results, no movement of the chest wall being found during systole; in 20 there was slight retraction of an interspace, usually the eleventh, without any tug on the ribs; 25 showed marked retraction, usually with a distinct tug on one or more ribs; while in the remaining 4 an outpush of the chest wall was observed during systole. It has not seemed necessary to tabulate these four cases or those which gave negative results, but it may be noted that three of the latter were cases of aortic insufficiency, with practically no enlargement of the heart, and that there were no other cases of cardiac disease among them.

Whenever a retraction, however slight, was found, the patient was carefully examined for other important signs of adherent pericardium, namely, the retractions about the apex and epigastrium, the interference with Litten's sign on the left, and the fixation of the apex beat. The size of the heart was also noted in all such cases.

TABLE NO. I. MARKED RETRACTIONS.

No.	Diagnosis	Age	Devel'p't and Shape of Chest	Heart	Retractions: Apex	Epigastrium	Left back	Elsewhere	Shift of apex	Litten's sign (left)	Remarks
1	Mitral insufficiency	53	Prominent precordia, otherwise normal	Apex felt, 6th space, 1½ inches outside of nipple	—	—	+	—	+	+	Retraction, 11th space, and 11th and 12th ribs; distinct tug; area size of palm of hand
2	Aortic stenosis and insufficiency; relative mitral insufficiency	19	Normal	Apex, 6th space, 3 inches outside of nipple line	—	—	+	+	+	+	Marked tug, lower 3 ribs, left back; slight retraction, 10th and 11th spaces right back
3	Aortic roughening and insufficiency; mitral stenosis	24	Normal	Apex under 7th rib, 3 inches outside of nipple line. Forcible action	—	—	+	—	+	+	Tug on tip of 12th rib and surrounding area, 2 by 1¼ inches
4	Mitral stenosis and insufficiency	19	Normal	Apex, 7th space 4 inches outside nipple. Impulse diffuse	—	—	+	—	+	+	Marked retraction of 10th and 11th interspaces; area 3 by 2¼ inches
5	Mitral stenosis and insufficiency	29	Normal	Apex, 6th space, 2 inches outside nipple line	+	—	+	—	+	+	Systolic retraction of interspaces anteriorly, beginning 1½ inches to left of median line and extending to anterior axillary line, 7th space. Posteriorly, retraction 11th and 12th ribs and 11th space, area 3 by 2¼ inches
6	Aortic roughening and insufficiency	48	Normal	Apex, 6th space, 1 inch outside nipple	—	—	+	—	+	+	Retraction, 11th rib and space, area size of palm of hand
7	Aortic insufficiency	50	Normal	Apex, 6th space, 3 inches outside nipple line. Heart irregular, powerful, slow	+	—	+	—	+	+	Marked retraction at apex and to left of sternum, about nipple. Posteriorly, 11th and 12th ribs and 11th space; whole posterior side pulled in with systole
8	Mitral stenosis and insufficiency	17	Slender, rather narrow-chested	Apex, 5th space, 1 inch outside nipple	—	—	+	—	+	+	11th and 12th ribs below angle of scapula; area size of palm of hand.
9	Mitral insufficiency	11	Normal	Apex, 5th space, ¾ inch outside nipple	—	—	+	—	+	+	Retraction, 11th space; area somewhat larger than a dollar; well marked pull
10	Mitral stenosis and insufficiency	25	Barrel chest, stooping shoulders	Apex, 5th space, ½ inch outside nipple	—	—	+	—	+	+	Marked retraction, 10th and 11th spaces, area 2½ by 2 inches
11	Phthisis	38	Very thin; narrow chest	No enlargement	—	—	+	—	+	+	Marked retraction of 11th rib and interspace
12	Mitral stenosis and insufficiency	37	Left side of chest, contracted from old pleurisy	Apex, 5th space, 1 inch outside nipple	—	—	+	—	+	—	No movement of left chest in breathing Retraction 11th space and tip of 12th rib
13	Aortic insufficiency; relative mitral insufficiency	27	Normal	Apex, 5th space, ½ inch outside nipple	—	—	+	—	+	+	Retraction, 11th rib and interspace; area 2½ by 2 inches
14	No disease	41	Normal	Normal	—	—	+	—	+	+	Retraction, 11th interspace; area nearly size of palm of hand
15	Aortic insufficiency	38	Normal	Apex, 5th space, ½ inch outside nipple	—	—	+	—	+	+	Distinct retraction in 11th space; area 2 inches in diameter
16	Chronic interstitial nephritis; cardiac hypertrophy	50	Normal	Apex, 6th space, 1 inch outside nipple	—	—	+	—	+	+	Whole posterior side of chest wall pulled with systole

17	Mitral stenosis and insufficiency	27	Normal	Apex, 6th space, 1 inch outside nipple line	—	—	+	—	+	+	11th and 12th ribs and 11th space, retraction over area size of palm of hand
18	Nephritis; aortic insufficiency	47	Normal	Not enlarged	—	—	+	—	+	+	Marked retraction, whole side from 10th rib to 12th rib (inclusive)
19	Mitral insufficiency	55	Normal	Apex, 6th space, 2 inches outside nipple	—	—	+	—	+	Dim.	11th and 12th ribs and 11th space, marked retraction over area larger than palm of hand
20	Aortic insufficiency	33	Normal	Apex, 5th space, ¾ inch outside nipple	—	—	+	—	+	+	Pull on tips of 11th and 12th ribs
21	Phthisis; esophageal stricture	62	Thin and flat-chested	Not enlarged	—	—	+	—	+	Slight	Retraction 11th space, visible over area size of palm of hand
22	Gastric carcinoma	50	Very much emaciated	Not enlarged	—	—	+	—	+	+	Marked retractions in 9th, 10th and 11th spaces, beneath angle of scapula
23	Deferred; patient did not return	28	Normal	Not enlarged	—	—	+	—	+	+	Marked retraction over large area including 10th and 11th spaces and 11th and 12th ribs, just below angle of scapula
24	Aortic insufficiency	38	Normal	Apex, 5th space, ¾ inch outside nipple	—	—	+	—	+	+	Retraction over area including tips of 11th and 12th ribs, and 11th space
25	Chronic esophagitis	59	Thin, flat-chested	Apex, under 6th rib, 1½ inches outside nipple	—	—	+	—	+	+	Retraction in 11th space, well marked, visible over area, 2 inches in diameter

TABLE NO. II. SLIGHT RETRACTIONS.

No.	Diagnosis	Age	Devel'p't and Shape of Chest	Heart	Retractions: Apex	Epigastrium	Left back	Elsewhere	Shift of apex	Litten's sign (left)	Remarks
1	Aortic insufficiency	19	Normal	Apex, 5th space, 1 inch outside nipple	—	—	+	—	+	+	Slight retractions 10th and 11th spaces, visible over area size of dollar
2	Aortic and mitral insufficiency	40	Normal	Apex, 6th space, 1½ inches outside nipple	—	—	+	—	+	+	Slight, but distinct, 10th and 11th spaces, area size of a dollar
3	Functional heart	20	Normal	No enlargement, forcible impulse	—	—	+	—	+	+	Very slight, 11th space, size of half dollar
4	Phthisis	33	Thin, flat chest	Not enlarged	—	—	+	—	+	+	Very slight, 11th space
5	Phthisis	47	Thin	Not enlarged	—	—	+	—	+	Neither side	Fairly marked retraction, 11th space
6	Phthisis (incipient)	29	Thin, narrow-chested	Not enlarged	—	—	+	—	+	+	Slight retraction, 11th space, area size of a dollar, below angle of scapula
7	Bronchitis	65	Rather thin	Not enlarged	—	—	+	—	+	Very Slight	11th space, in line of angle of scapula
8	Phthisis	30	Thin, flat chest	Not enlarged	—	—	+	—	+	+	11th space, area size of dollar
9	Phthisis	25	Normal	Not enlarged	—	—	+	—	+	+	11th space, small area
10	Lead poisoning	41	Normal	Not enlarged	—	—	+	—	+	+	Area size of palm of hand, below 11th rib, retraction very slight
11	Cardiac hypertrophy	32	Normal	Apex, 5th space, under nipple. Powerful impulse	—	—	+	—	+	+	11th space under angle of scapula
12	Syphilis	21	Rather thin, otherwise normal	Not enlarged	—	—	+	—	+	+	11th space, area 2 inches in diameter, slight retraction
13	Dyspepsia	42	Normal	Not enlarged	—	—	+	—	+	+	Slight in 11th space, very slight in 10th, small area size of half dollar
14	Fever; cause?	15	Normal	Not enlarged	—	—	+	—	+	+	Very slight, 11th space, area size of half dollar
15	Enlarged glands (tuberculous?)	24	Normal	Not enlarged	—	—	+	—	+	+	Very slight, 11th space
16	Lead poisoning	34	Normal	Not enlarged	—	—	+	—	+	+	Very slight, 11th space, area size of dollar
17	Not made	31	Normal	Not enlarged	—	—	+	—	+	+	Very slight, 11th space
18	Dilated stomach	45	Normal	Not enlarged	—	—	+	—	+	+	Very slight, 11th space
19	Phthisis (right lung)	31	Much emaciated, narrow chest	Not enlarged	—	—	+	—	+	+	In 11th space under angle of scapula, retraction visible over area size of a dollar
20	Aortic insufficiency and roughening	50	Normal	Apex, 5th space, ½ inch outside nipple	—	—	+	—	+	+	Very slight, 11th space, size of half dollar

A further classification of these cases as to the occurrence of retractions follows:

	MARKED RETRACTION	SLIGHT RETRACTION
Cardiac hypertrophy (valvular lesion, 20 cases)	18	4
Cardiac lesion without hypertrophy,	1	0
Thin individual,	4	7
Other cases,	2	9
	25	20

From an examination of these tables it will be found that, except the three cases of slight enlargement mentioned above among the negative results, all the cases of cardiac hypertrophy showed some degree of retraction, while none of them, except Cases 5 and 7, Table I, gave any other sign of adherent pericardium. Since none of these cases came to autopsy, it is not possible absolutely to rule out this condition, yet it seems hardly probable that it would be present as a complication in so large a proportion of the cases of valvular heart disease.

The results of these observations go to show:

(1) That retractions in the left back are much more common than is generally supposed, although it is probable that they would be noted more frequently if always looked for during the routine physical examination.

(2) That systolic retraction of a marked degree, similar to and often identical with that described by Broadbent, is found in many cases of cardiac hypertrophy in which there is no other reason to suspect pericardial adhesions.

(3) That systolic retraction, more often involving the interspaces only, may be seen in the left back in thin individuals, especially if there is marked emaciation.

The reason for many of these retractions would seem to be as follows: Since the pericardium is even under normal conditions adherent to the central tendon of the diaphragm, it is conceivable that with each systole there is a slight pull on the diaphragm. Under ordinary circumstances this is not marked enough to be transmitted to the points of attachment of the diaphragm to the chest wall, but if the heart is hypertrophied or acting very vigorously, the pull may be sufficient to be visible externally, while in a thin individual even a slight movement would be more easily perceived.

In closing I wish to thank Dr. Richard C. Cabot for the interest which he has shown in this work, and for his help in verifying my observations.

BIBLIOGRAPHY.

[1] Broadbent, Walter: An Unpublished Physical Sign. *Lancet*, July 27, 1895, p. 200.
[2] Broadbent, John F. H.: Adherent Pericardium, 1896.
[3] Butler: Diagnostics of Internal Medicine, 1901, p. 874.
[4] Tyson: Practice of Medicine, 1901, p. 554.
[5] Cabot, Richard C.: Physical Diagnosis, 1903, p. 222 and p. 225.
[6] Gibson, George A.: Diseases of the Heart and Aorta, 1898, p. 360.
[7] Babcock, Robert H.: Journal of American Medical Association, Dec. 14, 1901, p. 1578.
[8] Babcock, Robert H.: Diseases of the Heart and Arterial System, 1903, p. 119.
[9] British Medical Journal, May 15, 1897, p. 1223.
[10] Camac: Johns Hopkins Hospital Bulletin, November, 1898, p. 273.
[11] Broadbent, Sir William: Heart Disease, 1900, p. 249.
[12] Swift, George M.: Medical News, Feb. 28, 1903, p. 403.
[13] Baumel, L.: Archives des Médecine des Enfants, August, 1902, p. 647.
[14] Rogers, H. W.: Medical Record, Vol. lvii, p. 916.
[15] Lancet, Jan. 15, 1898, p. 161.
[16] Journal of American Medical Association, Feb. 3, 1900, p. 297.

THE MAMMA, ITS PHYSIOLOGICAL PURPOSES.*

BY THOMAS H. MANLEY, M.D., NEW YORK.

ITS COARSE AND FINER ANATOMICAL ELEMENTS IN THEIR BEARING ON SOME OF ITS PATHOLOGICAL AFFECTIONS.

IF we appreciated the treatment of the numerous pathological conditions of the female breast with a more complete knowledge of all its functions, purposes and of its complex structures, we would hesitate longer, and more frequently resort to conservative methods, rather than hastily resort to its total sacrifice by amputation in its various diseased conditions. Those large projecting, pyramidal, pectoral bodies in the adult are at once an integral part of the sexual system, besides serving an important cosmetic purpose, providing protection to the anterior wall of the thorax and supplying nutriment to the newborn. It is the only secreting organ calling for a vacuum to drain it, and discharging directly on the surface.

The description of its structures by nearly all anatomists is faulty, inadequate and misleading. Our faith in the teachings of writers on anatomy is so settled that even to question their accuracy has been regarded as a stupid effrontery. We have all been taught that the breast is a "gland with a capsule." Testut denies that it is a gland, but an aggregation of widely scattered, separate secreting lobes, each one opening on the surface of the mammella independent of the other.

The mamma has an excessive fibrous development in its parenchyma, the membrana-cribosa, without any definite organization or arrangement, stretching from the armpit to the sternum and from clavicle to blend below with the abdominal aponeurosis; but it constitutes no capsule, and is so intermingled with the panniculus-adiposus, the secreting lobes and lobules, as well as with the overlying integument, that its complete separation is impossible. The adipose tissue of the breast is of a deep yellow color; its proportion varies, but in corpulent individuals it constitutes the main volume. It lies in a deep layer over the secreting structures; fringes and corpuscles of it everywhere permeate the parenchyma. There are four sets of independent secreting glands in the mammary body. First, the sudoriporous and sebaceous, in their overlying adherent integument; second, the sebaceous or oleaginous, in the tissues of the mammella; third, diminutive tributaries in the areola; fourth, the lobular isolated lobes of the mamma. The latter drain into the galactiferous ducts, which open separately on to the surface of the mammella. The milk-ducts pursue a radiating direction as they extend inward, and break up in canaliculi in the lobules.

A critical dissection of the breast during the function of lactation will display the lactiferous ducts, varying widely in diameter and length, just as we will find some of the lobes diminutive

* Abstract of paper read at meeting of Miss. Valley Medical Association, in Cincinnati, Ohio, Oct. 14, 1904.

and others of considerable volume. The nipple is made up of white and yellow elastic tissue, galactiferous tubes having a cutaneous investment. The nipple contains no angiomatous tissue nor muscle fibre, and hence, strictly speaking, it is not an erectile organ; it is sometimes rudimentary, and often deformed through congenital or acquired conditions. The base of the nipple is guarded by a circular disc of integument of a remarkable histological composition, the areola. This, like the nipple, in its deeper layers is continuous with the fibrous felting of the mamma. The principal vascular supply to the breast is by the internal mammary artery, while its larger veins drain into the axillary trunk. The most notable feature in connection with its nerve supply is the preponderant influence on the sympathetic; no direct connection can be traced in its supply from the cerebrospinal system with that of the generative branches from below. Lymph nodes are lodged in groups at the outer, upper and inner aspect of the breast, but there is very little lymphoid tissue in the organ itself. Zappey depicts a most elaborate arborescent display of lymph vessels in the overlying integument, but several independent investigators have been unable to verify their presence by any description of injection. There can be scarcely any doubt that the importance of the lymphganglia has been greatly exaggerated in their relation to function, etc., in the mamma.

The "modern cleaning out" radical operation is based on the unproven assumption that they are the *fons et origo mali* of all serious mammary affections. In function the mamma is at once a duct and a ductless gland; *i. e.*, it has an external and an internal secretion. We have not isolated in its physiological state its internal secretion, neither have we that of the thyroid, the spleen or suprarenal bodies. In the child or the maiden, we find its elements as but shadowy and ill-defined; its acinous arrangement can be scarcely outlined. In the non-childbearing, and during the intervals of lactation, it is essentially a *ductless* gland; it discharges no secretion, but rather absorbs it, from which we must assume that the maintenance of the new-born is but one of the functions of the female mamma.

In two instances of double amputation of the breast coming under my observation in young women for cystic disease, both later married, but neither ever conceived. The complete amputation of both breasts is well known to produce most profound psychological impression, and often when but one is totally removed. The advent of nearly every variety of organic lesion here is quite invariably ushered in by depression of spirits and spells of distressing melancholy. Beatson's operation has clearly demonstrated the intimate relations between the breast and the ovaries. In monorchids, in crypt orchids, or hemorphrodism, imperfect development of the external male genitals — gynecomasia — or very large development of the mammæ, is a most conspicuous feature.

CONCLUSION.

The mamma is a highly organized and structurally a most complex organ.

Its functions are manifold. It is an essential and integral part of the generative system. Intermittent in function, like the testes, total ablation, like double castration, makes its impress on the sensorium.

Very frequently degenerative or pathological changes begin in a single isolated lobe — about twenty of which are in each breast. In all non-malignant affections, radical measures should be limited as far as possible to the affected area or lobe.

It is only in malignant disease of a progressive type and when life is imperiled that total sacrifice of the breast is justified.

Inasmuch as the functions and purposes of the axillary lymph ganglia are yet imperfectly understood, and their removal quite invariably enhances the risks of operation, involves a wide mutilation of the chest walls, and always leaves more or less impediment in shoulder action, or even at times a painful tumefied limb, it is only as an extreme and exceptional measure that their complete extirpation should be practiced.

Clinical Department.

PENETRATING BULLET WOUNDS OF RIGHT LUNG, LIVER AND STOMACH, SUPERFICIAL WOUND OF SCALP.

LAPAROTOMY. PURSE-STRING SUTURE OF STOMACH WOUND, AND CLOSURE OF WOUND OF LIVER BY INTERRUPTED SUTURES. RECOVERY.

BY F. S. WATSON, M.D., BOSTON.

THE patient, a man of fifty-three years of age, was brought to the relief station of the Boston City Hospital twenty minutes after having shot himself thrice with a thirty-two caliber revolver.

The three wounds inflicted by the bullets were as follows:

(1) A superficial wound a little to the right of the median line of the head and just behind the parietal eminence on the right side. The ball had passed through the scalp from right to left. This injury was unimportant.

(2) A penetrating wound of the right side of the thorax. The bullet entered between the fourth and fifth ribs between the axillary and mammary lines in a direction slightly oblique from before backwards. So far as could be judged without probing the wound, the ball had penetrated the chest wall, and probably had passed through the posterior and upper half of the middle lobe of the lung, this being conjectured from the embarrassed respiration which, though not excessive, was well marked, and the presence of percussion dullness over a considerable area of the lateral and posterior part of that lung.

(3) A penetrating wound which entered the abdomen from before backward and slightly oblique direction from left to right, just to the right of the free border of the ribs of the left side and opposite the tip of the eight.

(The patient subsequently stated that he had fired the last two shots holding the revolver in both hands around the butt and pulling the trigger with the thumb of one hand.)

At the time of entrance at the station, shock was pronounced; the patient began to react under the influence of heat and restoratives at the end of the first half hour.

When first seen by me he had rallied well. There was moderate but increasing tenderness of the abdomen not definitely localized. Moderate and gradually increasing tympanites. Liver dullness was entirely absent. Slight and increasing rigidity of the abdominal muscles. Pulse of fair strength and volume, 110, temperature normal.

Operation. — One hour after receipt of injuries, the abdomen was opened by a four-inch incision in the median line extending downward from the tip of the ensiform cartilage. A considerable quantity of gas escaped from the abdominal cavity through the incision. There was a good deal, but not a great quantity of blood in the posterior and lower parts of the peritoneal cavity. No stomach or bowel contents were seen to have escaped. About an inch and a half below the lower third of the front of the lesser curvature of the stomach was a penetrating bullet wound. This was at once closed by a double purse-string suture.

The posterior surface of the stomach was carefully examined but no other wound there or elsewhere in the organ could be found. The left lobe of the liver, at a point in it corresponding in position to the wound of the stomach, was perforated by the ball from above downward. Such bleeding as was taking place came from this wound from the liver. The hemorrhage was readily controlled by a couple of sutures passed through the edges of the lower orifice of the liver wound, and closing it when tied. No other intra-abdominal organ was found to be wounded, but as there was enough blood collecting in the dependent parts of the peritoneal cavity to cause some doubt as to the existence of some other injury which could not be located, counter openings were made in both loins and drains were passed through them. The anterior wound was closed except for a space to allow the passage of a gauze wick; the latter was withdrawn on the second day, and both drains in the loins on the fourth day. The patient made an uninterrupted recovery. One of the bullets was found beneath the skin of the back a month later and removed. This was presumably the one which had entered the thorax.

The points of interest to the writer in this case were :

(1) The manner in which the patient inflicted the wounds, *viz.*, that he should have had the resolution to shoot himself three times in succession in view of the serious nature of two of the wounds inflicted, but more especially of the difficulty that is involved in directing the shots in such a way as to make the wounds that were found. Had the revolver been held in the ordinary way, it would have been impossible for the patient to have made the wounds himself. He subsequently explained that he held the butt of the weapon in both hands and pulled the trigger with one of his thumbs.

(2) The fact that the bullet which entered the stomach through its anterior wall, and did not pass out of it again — there being but one wound of the stomach found upon careful examination — was never located, either at the time of operation by digital exploration of the interior of the stomach, was not seen in the movement of the bowels, or revealed by x-ray examinations subsequently.

(3) The case is another example of the success that attends early operation in such cases.

A URETERAL CALCULUS OF UNUSUAL SIZE.*

BY JOHN BAPST BLAKE, M.D., BOSTON,
Assistant Surgeon, the Boston City Hospital.

THE accompanying cuts show the actual size and something of the appearance of a ureteral calculus removed from a patient by the writer on Dec. 24, 1903. The calculus weighs 200 gr. (almost half an ounce), is 1½ by 1 by ¾ inches in its extreme measurements, and is composed of phosphates.

The history of the case is long, extending over eighteen years. It may be summarized as follows:

Mr. C., twenty-eight years of age, married, was seen in consultation with Dr. David McIntyre on Feb. 3, 1903. The family history was good; when eleven years old, the patient suffered a heat stroke. Almost immediately afterwards he had severe paroxysmal pain in the back, on the left side; this pain lasted for three or four days and gradually disappeared; it recurred about twice a year until he was eighteen. The attacks sometimes kept him at home a week. In 1896 Dr. Keyes of New York removed two calculi from the pelvis of the left kidney. After the operation the patient was very sick and had a high fever. The wound closed in about eight weeks. Since his eleventh year he has had pus in the urine almost constantly. Immediately after Dr. Keyes' operation attacks of pain developed in the right kidney. In many of these painful attacks, blood appeared in the urine for a few days. Since 1896 he finished his college course and went into business. In one of the recent attacks he was seen by Dr. Arthur Cabot who advised operation on the right kidney, believing a renal calculus present. Operation was refused.

On Jan. 23, 1903, after a long ride in a crowded electric car, during which he was obliged to stand, pain began in the region of the right kidney, rapidly becoming severe and accompanied by fever and vomiting. The pain extended down towards the bladder, and he

* Read at a meeting of the Obstetrical Society of Boston, April 26, 1904.

passed some bloody urine; for three days pain persisted and on Jan. 29 began in the left kidney, becoming extremely severe and requiring morphine. He remained in bed, with irregular fever, much pus in the urine, and a varying amount of pain, until seen in consultation on Feb. 3.

Physical Examination. — A tall, slim man, pallid, features drawn, tongue thickly coated. Pulse regular, fair strength, 100, temperature 100.2. Heart, lungs and extremities negative. Abdomen: slight, general distention and muscular spasm; tenderness and spasm most marked in left loin, where a sense of deep resistance and almost of fluctuation was felt. No edema. Urine: pale, alkaline, 1010, very much thick ropy ill-smelling pus. Albumin ¼%+. Sediment, pus, bladder cells and granular detritus; no tubercle bacilli found. Inoculation of guinea pigs negative. He had been having Pot. acetat, sodium bicarb. urotropin in small doses, together with bladder irrigations. The diet was exclusively liquid, and he drank large quantities of water.

He did not improve and was seen again in consultation with Drs. F. S. Watson and McIntyre. Operation recommended on left kidney for drainage; performed on Feb. 28, Dr. Watson assisting. The lumbar incision revealed a very large kidney, thin walled and containing an enormous amount of pus. No calculi were discovered nor could the ureteral opening be found. The wound was drained through the flank by a large rubber tube.

Immediately after this operation, the right kidney reacted and the temperature rose. There was tenderness and muscular spasm in the right hypochondrium and an increase of pus in the urine. These signs gradually disappeared, and during the late spring and early summer, the patient was able to be out of doors and take short drives. Drainage of the kidney was continued, the rubber tube emptying by catheter into a hard rubber flask supported by a belt worn around the patient's waist. This method was suggested by Dr. F. S. Watson and had been used on a patient of his, who has worn it without discomfort for four years, following his regular routine of active work.

Early in July, 1903, Mr. C. complained for the first time of some localized pain and tenderness two or three inches to the left and just below the umbilicus. No tumor was discovered; the pain caused an increased desire to flex the left leg, a position often voluntarily assumed by the patient at various times during several years past. This local tenderness slowly disappeared, but returned again, and after Thanksgiving, became so severe as to compel consideration of a third operation. He was moved to the Boston City Hospital on Dec. 7, and an x-ray plate was taken. This showed a shadow fully as large as an olive, at the site of the pain and tenderness, where a tumor could now be felt. It was decided that operation in his enfeebled condition would be accompanied by so much danger that it would be justifiable only when his pain and distress became unendurable, particularly as a complete cure seemed out of the question. He returned to his home on Dec. 11; the pain increased, as did the tumor and tenderness. Dr. Paul Thorndike saw him in consultation Dec. 21 and operation for the relief of suffering was advised, and performed Dec. 24, Dr. Thorndike assisting. By this time deep fluctuation had developed near the left anterior superior iliac spine; the incision was made over this point parallel to the upper part of Poupart's ligament, the object being a retroperitoneal removal of the calculus, and drainage of the accompanying pus. Tissues were matted together by the long standing inflammation, and landmarks were obliterated. It was difficult to avoid opening the peritoneum. The pus was easily evacuated, but the calculus, situated at the pelvic brim, and close to the left common iliac and vein, was reached only after persistent efforts and where it seemed as if the operation would have to be ended. The large stone appeared to have partially sloughed through the posterior ureteral wall and was in part imbedded in the psoas muscle. It was finally removed and the wound drained both with gauze and a rubber tube. It was not possible either to reach the kidney through the ureteral opening, nor the site of the calculus through the old nephrotomy wound. The patient stood the operation fairly well. He lived two weeks, without peritoneal complication, and with a diminution of the pain and muscular spasm which the calculus had caused. He died of persistent vomiting, being entirely conscious to the end. No autopsy was allowed, so that the existence of calculi in the pelvis of the right kidney remains unproven. A sound passed into the bladder did not detect a vesical calculus.

The large ureteral calculus probably developed rapidly from a small one originally formed in the pelvis of the kidney. Large as it was, it may not have completely stopped the passage of urine to the bladder, else we should have expected an atrophy of the kidney. This may have been averted by the drainage through the loin. The lack of .an autopsy is much to be regretted as it leaves unsettled many important questions. There is little doubt that a series of small calculi passed at various times from this man's kidneys to his bladder; one of these lodged at the brim of the pelvis, enlarged rapidly and caused pain and spasm of the psoas muscle. The condition of the right kidney contra-indicated any operation except one of necessity. The case illustrates the necessity of early interference, and the comparative hopelessness of late operations. It is one of a comparatively small class in which a calculus in the ureter could be located by palpation.

COMA FOLLOWING LABOR.*

BY C. V. FRIEDMAN, M.D., BOSTON.

THE case, here described, was seen in the outpatient clinic of the Boston Lying-In Hospital. For amplifications of my notes and the hospital records, I am indebted to Dr. R. L. DeNormandie who, as house physician, had charge of the patient.

Mrs. E. H., age twenty-four; ii para. First delivery in October, 1901; low forceps; normal convalescence. I saw the patient on Nov. 20, 1903. The cervix was not taken up, there were irregular uterine contractions, temperature and pulse were normal, but patient looked anemic and flabby. Pelvis generally contracted, intercristal 25 cm.; interspinal 22 cm.; external conjugate 17 cm. Head high O. D. P. The contractions continued without progressive dilatation and she was given 30 gr. of chloral in two doses on Nov. 20 and again on Nov. 21; this secured some sleep each night.

Active labor began at 2 P.M. Nov. 22 and the patient delivered herself at 2.15 A.M. Nov. 23. Two hours later the externe left her in good condition. Temperature 100.8, pulse 90. Patient had a normal tempera-

* Read at the meeting of the Obstetrical Society of Boston, April 26, 1904.

ture and pulse in the morning and evening, took nourishment well, voided urine easily and was comfortable. At about 2 A.M. Nov. 24 she had a chill followed by a period of excitability (possibly a convulsion). She then became semi-comatose, and the condition noted when I saw her later in the day was as follows:

Patient unconscious but can be aroused with difficulty, to muscular action and inarticulate utterance. Occasional spasmodic movements of eyebrows. The hands are clasped over the occiput. When moved, patient resists, using both arms and both legs equally. The face is blanched, face and body wet with profuse perspiration. No edema. Respirations regular, stertorous, 28; pulse regular, normal in volume and tension, 80; temperature 102.8° F. Eyes closed, pupils equal, moderately constricted, react to light. No strabismus. Moderate lachrymation. Marked photophobia. Heart, lungs and abdomen negative. Uterus apparently well contracted, fundus just below umbilicus, no tenderness. Lochia normal. Knee jerks slightly increased but equal; no ankle clonus; no Babinski.

By catheter, two and a half pints of clear urine, acid, high, 1020, no sugar, no albumin, urea 1.39%.

℞ Saline catharsis, ice bag to head, forced liquids. There was slow but steady improvement. At midnight patient recognized her husband and, after vigorous arousing and interrogation, complained of pain in the occipital region. Forty hours after the attack began patient was lucid when aroused but soon relapsed into a semi-comatose condition. At the end of sixty hours she approached a normal mental condition but still complained of headache and of general soreness of the limbs.

Temperature and pulse reached normal on the third day and remained normal. The urine continued normal in amount and character except for the "slightest possible trace" of albumin which appeared first about fifty hours after the attack. At about the same time marked labial herpes appeared. Careful daily examinations revealed no further physical signs. The patient was discharged well at the end of a fortnight.

When I saw the patient during the coma I was not able to make a satisfactory diagnosis. As there was no previous history of epilepsy or hysteria I considered in order of probability, chloral poisoning, cerebral injury, eclamptic coma, diabetic coma and a severe, atypical intercurrent, febrile affection.

In spite of the possibility of delayed absorption and elimination due to the puerperal state, chloral narcosis was ruled out as the patient had in all but 60 gr. of chloral in divided doses at long intervals; the symptoms did not supervene until fifty-eight hours after the last dose; nausea and vomiting were absent. The reflexes were present and the pulse was slow and full. There were no signs of meningitis or cerebral injury except the coma. The absence of sugar threw out diabetes.

Having seen at the time several cases of influenza, all severe and variously atypical, it occurred to me as a possible diagnosis, but although I could not exclude it I did not feel inclined to accept it.

Having seen several cases of eclampsia in which the urine was normal in amount and character, cases where there was but a single convulsion followed sometimes by death, more frequently by recovery; cases where there were no symptoms for one or two days after delivery, I felt inclined to consider this a case of pure eclampsia. That is, a case of eclampsia not exhibiting any of the various symptoms which are classed generally as eclamptic although they ought to be considered, perhaps, as the symptoms of distinctly secondary affections which are sequels of the eclamptic toxemia.

Reports of Societies.

THE AMERICAN THERAPEUTIC SOCIETY.

FIFTH ANNUAL MEETING, HELD AT THE ACADEMY OF MEDICINE, NEW YORK, JUNE 2, 3 AND 4, 1904.

FIRST DAY, JUNE 2.

THE address of welcome was made by Dr. R. W. Wilcox, chairman of the Committee of Arrangements, and responded to by Dr. D. O. Leech of Washington, D. C. Thirteen new members were elected, and Drs. Georges Nayem of Paris and Heinrich Schoeler of Berlin were elected honorary members. An obituary was read of the late Dr. Robert N. Graham of Washington by Dr. Robert Reyburn, and appropriate resolutions were adopted by the Society. The president's address was delivered by Dr. Howard N. Barker of Washington, D. C. In it he dwelt upon the growing evils of patent and proprietary medicines and the various forms of quackery so prevalent, and upon the urgent duty of the medical profession to unite in systematic efforts for their curtailment. He also devoted considerable attention to recent advances in organotherapy and in the diagnosis, prophylaxis and treatment of tuberculosis.

SYMPOSIUM: RECENT ADVANCES IN ANESTHESIA.

The introductory to this was read by DR. R. W. WILCOX of New York. A paper on

RECENT EXPERIMENTAL WORK

contributed by DR. TOROLD SOLLMANN of Cleveland, was read by DR. P. BRYNBERG PORTER.

GENERAL ANESTHESIA

was assigned to M. F. THOMPSON of Washington. Ether, he said, still holds highest rank as a general anesthetic. For short operations in children, chloroform is in favor. For prolonged operations in children, it is safer to substitute ether for chloroform as soon as loss of sensation occurs. For minor operations, nitrous oxide gas as administered to-day is an ideal anesthetic. The compactness of the gas as now furnished makes its use much more convenient than formerly. The gas-ether sequence is an excellent method in experienced hands, and appears likely to grow in favor. In 1902 McCardie reported on the satisfactory use of ethyl chloride in over 600 cases. He asserts that this agent possesses all the requisites of a perfect anesthetic, and that it is the safest of all anesthetics except nitrous oxide gas. Seitz records 16,000 cases with only one death, and that in a very unfavorable subject; and Soulier, 8,000 cases, with no death. Von Necken uses ethyl chloride whenever it does not seem safe to employ ether or chloroform, as in high degrees of circulatory interruption, fatty degeneration of the heart, disease of the respiratory organs, nervous shock, and enfeeblement from great loss of blood.

LOCAL ANESTHESIA.

This paper was read by DR. E. J. KIEPE of Buffalo. Cocaine and eucaine, he said, still hold first place. While the newer agents and methods offered from time to time usually possess some advantages over our older agents, they usually develop deficiencies when given the test of practical experience, which soon relegate them to the background. Either they are decidedly toxic or too irritating, or they do not possess penetrating powers. Thus the prominent series of complex chemical substances known as acoines, while presenting almost every advantage that one might wish for, are so irritant as to be caustic when injected into subcutaneous or subconjunctival tissues, even in solutions of a strength of 1 in 1,000 of normal salt solution. Acoine associated with cocaine, in the proportion of 1 to 11, has been recommended by Darier, but this combination, while very meritorious, is considered by many as still too irritating. Other agents, as orthoform, while possessing every advantage as an anesthetic, including even an antiseptic action, are of little value on account of their insolubility in water or normal salt solution; for if a solution is effected by other means, their anesthetic properties are largely or entirely destroyed. To Réclus we are indebted for bringing to notice the fact that dilute solutions of cocaine are as efficacious as stronger ones. He was the first to advise 1% solutions, and in exceptional instances, 2%. Schleich also showed that strong solutions were not necessary, and that solutions as weak as 1 in 5,000 were anesthetic, although he was cognizant of the fact that the large amount of water used as a diluent had considerable influence in producing anesthesia of parts. Of the recent advances, probably the most notable and best substantiated is the fact that the active principle of the suprarenal gland is a potent factor in lessening hyperemia. It is also a synergist of no mean value. While adrenalin has no anesthetic properties whatever of its own, not only are the toxic effects of cocaine and eucaine markedly diminished, but the anesthetic effects of both are increased to a marked degree by it. Dr. Kiepe has observed anesthesia to last as long as twenty minutes, and others report thirty minutes and more. Local blood vessels are contracted by the direct action of the adrenalin upon their walls. They remain firmly constricted for a number of hours afterward, and thus any tendency toward congestion and consequent hemorrhage is diminished, while the pain which is always present after the anesthetic effects of cocaine or eucaine have worn off is relieved. It is well to note the fact that certain varieties of cocaine, especially tropacocaine (existing naturally in Javanese coca leaves), do not act satisfactorily when combined with adrenalin.

LOCAL ANESTHESIA BY CATAPHORESIS AND BY PRESSURE ANESTHESIA.

DR. WILLIAM J. MORTON of New York read a paper on this topic. Cataphoresis, he said, implies that medicaments may, by electric pressure or voltage, be caused to penetrate the sound skin or mucous membrane, and thus exert their characteristic effects. If these medicaments have anesthetic or analgesic properties, we have then established a local anesthesia or analgesia. As the penetration of the skin may begin at either pole, we must speak of an anaphoresis; for this reason he has suggested calling the entire process electric medicamental diffusion. In his own practice he uses electro-cocaine-guaiacol local anesthesia in a great variety of minor surgical operations. The term "pressure anesthesia" was invented by Dr. Morton in 1897 to define a new method of local anesthesia presented by him at that time. This method was based on the idea that medicamental solutions, especially anesthetizing ones, might be forced into the tissues by the pressure of vapors or gases or by mechanical pressure. Pressure anesthesia has now become well nigh universal in dental practice. To a strong solution of cocaine in guaiacol is added an equal amount of ether, and when this is introduced on cotton within a tooth cavity, and the cavity is closed with a soft rubber stopping, the evaporation of the ether (and probably also the mechanical pressure of forcing in the stopping) forces the anesthetizing solution into the sensitive tissue of the tooth cavity. In the practice of pressure anesthesia in minor surgery, Dr. Morton has frequently made use of a cupping glass, a watch glass, or a test tube, in which to allow the evaporation to take place.

STERILE WATER ANESTHESIA.

DR. S. G. GANT of New York read a paper on this subject. The method described was that which Dr. Gant first presented in a recent paper at a meeting of the Medical Association of the Greater City of New York, a report of which was published in the JOURNAL in March last.

THE MEDICAL TREATMENT OF APPENDICITIS.

DR. A. J. HALL of Washington read a paper on this subject, in which he argued that most cases of this disease could do better without than with surgical interference. This position was vigorously assailed by Drs. O. T. Osborne, D. O. Leech, Leonard Weber and Carl Beck, who thought that the views expressed in the paper should not go forth as the sentiments of the Society.

SECOND DAY, JUNE 3.

SYMPOSIUM: THE COMBAT WITH INFECTION.

This was opened by DR. T. E. SATTERTHWAITE, with a paper on "Infection and Immunity." Infection, he said, may be mediate or intermediate, direct or indirect. Anthrax, typhoid, cholera and diphtheria can be transmitted through the medium of water. Diphtheria can be transmitted through the medium of milk, or by contact with the infected person. The possibility must be borne in mind, however, that the bacilli of diphtheria and typhoid may have a mycelial growth, like the fungi; even that they sometimes may possibly be jaculative saprophytes, *i. e.*, that they can develop *de novo* in suitable dead material. In some affections, like tetanus and diphtheria, the pathogenic bacteria have only a local manifestation; in others, like anthrax, they may infect the blood throughout the system. The behavior of an animal toward an infection varies according to the species, the individual and the circumstances. It should also be borne in mind that there is apt to be a wide difference between the human disease and the experimental of animals, both as to symptoms and lesions. In tetanus, however, there is a marked resemblance between the human disease and the artificial of animals. Both susceptibility and immunity are relative rather than absolute terms. Three varieties of susceptibility are recognized, — a natural, an acquired, and an inherited, — and we likewise have acquired and inherited immunity. There are two forms of acquired immunity, — the active and the passive, — and they are of great interest at the present time. Passive immunity is produced by antitoxins, and the individual inoculated with the antitoxin shares the immunity *passively* with the animal from whom the antitoxin is drawn. It is the condition produced by serum therapy, and the

antitoxin is both prophylactic and curative. Inherited immunity has been shown experimentally in anthrax and tetanus.

Passing on to the subject of mixed infection, he said that to render an animal immune there is another method beside that of neutralizing the toxin by antitoxin, namely, by the use of bacteriocides. When micro-organisms alone are used for producing immunity, the serum develops marked antibacterial powers, while it has little or no effect on the toxins elaborated. On the other hand, when the filtered cultures (toxins) are used, the serum develops both antitoxic and bacteriolytic properties. It is apparent, therefore, that the sera prepared by these two methods are not identical. These principles are recognized in the manufacture of the various specific sera, such as the antidiphtheritic serum, antiplague serum, etc. The animal body has the power to produce certain substances which will defend it against all sorts of alien cells and their products. While the nature of these substances is unknown, it has been shown that they are able to neutralize poisons, agglutinate cells, etc. They are classed as antitoxins, agglutinates, precipitates, coagulins, etc. The discovery of "clumping" or agglutination has been of the greatest value, and forms the basis of the Widal test in typhoid fever. Having mentioned the various theories of immunity which have been brought forward, Dr. Satterthwaite said that according to Ehrlich's theory, the most recent of these, if immunity had been acquired, the explanation would be as follows: The receptors circulating in the blood anchor any of the corresponding toxin molecules before they can reach the cells; and in passive immunity, the serum of the immunized individual, injected into another individual, supplies him with these receptors, thus conferring on him protection against infection. As regards natural immunity, either the cells are developing so many receptors that there are always enough in the blood to anchor any toxins or molecules and prevent them from attacking the cells, or the cells may have no receptors (processes) fit to grasp the toxin-haptophors. While Ehrlich's theory has naturally met with opposition, it would seem to be convenient for us to accept it provisionally as a good working hypothesis, which will be helpful in discovering the principles governing immunity, whatever they may be. The concluding part of the paper was devoted to latency in infective disease.

INTERNAL ANTISEPSIS.

By Dr. J. N. Hall of Denver, Col.: The improvement in the methods of the surgeon who a few years ago assumed the responsibility for most of the deaths from sepsis, has produced no more striking result than the almost total elimination of this term from the list of the causes of death of his patients, while the physician still signs a comparatively large number of certificates bearing this opprobrious designation. Fortunately, we are encouraged by the recent attention given to this subject and by the favorable results which have attended, in a small measure at least, some of the work along this line. The more general use of the antitoxins might at first sight appear to render unnecessary a struggle for a system of internal antisepsis. Yet when we consider that, for instance, a definite croupous pneumonia may be caused by many different organisms, and that until bacteriological examination becomes more available than is now the case, we shall be unable to give the right antitoxin, even if we have it, at the very beginning of the disease. This is imperative if we look for good results; we must conclude that in this disease, as in many others, we shall long have opportunity for battle against a more or less general sepsis. The ability of septic organisms to do harm lies not so much in the few which enter the blood stream as in the capacity of these for indefinite multiplication, and an infinitely less powerful antiseptic suffices to prevent reproduction than is necessary to cause the death of the parent organism. The most important results thus far have been accomplished in the digestive tract. It is probable that the long-practiced exhibition of hydrochloric acid is really soundly based on two grounds: That it acts in part by improving nutrition through supplying a digestive ingredient lessened by the fever, thus promoting normal digestion, and in part by the prevention of the growth of organisms of fermentation in the intestine. It has been pointed out that in typhoid, chlorine tends to diminish the development of the causative bacillus, and of its toxins, in part at least, by increasing the secretion of bile. It must not be forgotten, however, that in this disease the bacilli may become established in the spleen and mesenteric glands, in the lung, or even in the meninges, and it is hardly to be expected that intestinal antiseptics will be of much service in controlling the results of such invasions.

Although we may accomplish much by the use of various bismuth compounds, naphtalin, salicylic acid, and other remedies, no generally accepted intestinal antiseptic has been brought forward. In the urinary tract we have been more successful in the use of antiseptics for combating bacterial infection, and urotropin particularly has given most satisfactory results. The effect of creosote and its congeners upon the bacilli of tuberculosis, as shown by repeated sputum examinations, is commonly believed to be a fairly definite one. Doubtless the results would be more easily noted were cases more generally placed under such treatment before the bacilli became abundant, and especially before mixed infection became a factor. These drugs act by rendering the soil unsuitable as a culture ground, and not directly as germicides. In the treatment of pulmonary tuberculosis nothing is more discouraging than the sepsis which follows the introduction of pus-producing organisms into the pulmonic lesions. Having mentioned two cases where quantities of streptococci were found in the sputum, in which the happiest effects followed the use of antistreptococcic serum, Dr. Hall expressed the opinion that whether the remedy was to receive all the credit for the improvement observed, the results obtained should lead to a study of this method of combating sepsis with the greatest hopefulness. Personally he had met with no such constant and positive effect from the use of creosotal or of sodium salicylate in pneumonia, but the excellent results obtained by Thomson and others he thought certainly justified further trial of these drugs.

PROTECTIVE INOCULATION.

This paper was read by Dr. George F. Butler of Alma, Mich. It must be admitted, he said, that the elements of error arising from the crude transference of animal results to man still exist in the case of protective inoculations. While the microbe or protozoön found with a given disease or morbid state is regarded as the cause of that state and is cultivated to produce a serum, the anatomical and physiological differences between man and the animal are ignored, and the logical requirement of science that a given hypothesis to be accepted must not only explain all the facts, but must exclude all other explanations, is set at defiance. Brilliant as seems the line of reasoning adopted in the recent explanation of immunity by Ehrlich's side-chain theory, and valuable as some of it is as a work-

ing hypothesis, much is based on a series of hypotheses, the demolition of any one of which would impair the main theory. In the horse, diphtheria runs the same course, though of milder type, as in man, and the complications are similar, though slight; hence the reaction produced by diphtheria was found to produce an antibody, which has proved, when properly applied, particularly efficacious against diphtheria. That such an antibody could not be used by direct transference to man is shown in the tetanus produced by it in Italy and in St. Louis. This tetanus ought to have been avoided through ordinary knowledge of the horse as an intermediary host for the tetanus bacillus. Further, it would have been impossible had the ordinary tests of unit strength been applied, since the guinea pig employed therein must have been tetanized. The problem in the application of protective inoculation implies the employment of such inoculation as will destroy the toxin (the soil-element poison of the old clinicians), and at the same time create the life-giving principles constituting the antibodies at the least expense to the system. This will be best accomplished by distributing the strain generally, rather than leaving it to expend its strength on the individual cells, and this is done best by employing the specializations through which most is accomplished by the least expenditure of force. But the power of the organism to antagonize the constitutional effects of pathogenic germs, their toxins and other poisons, is directly proportionate, all other things being equal, to functional activity of the adrenal system. The problem of a protective inoculation is complicated by the factor of mixed infection, and further, the latter is complicated by the differing effects of toxins. To meet all these factors is a difficult question of great complexity, which is still further complicated by the fact, pointed out by students of comparative medicine long before Koch, that tuberculosis of cattle differs in character from that of man, this difference being much greater than that between variola and vaccinia. The problem of protective inoculation therefore implies a study of comparative medicine with the variation between man and animal taken into account. It also involves a careful study of the hygiene and prophylaxis of the animal employed, and of the human subject before, during and after inoculation. The following papers in the symposium were read by title: "Physiological Problems," by Dr. William H. Porter of New York, and "Antisepsis in Surgery," by Dr. R. T. Morris of New York.

THE NEED OF REVISING OUR IDEAS OF STIMULATION.

DR. E. H. LONG of Buffalo read a paper on this subject, in which he proposed a classification recognizing three general classes of stimulants: (1) Agents which increase the irritability of nerve centers or the conductivity of nerve fibres, thus augmenting the potential of a function; (2) agents which determine a more rapid or more powerful discharge of energy in the activity of a function, thus converting potential into kinetic energy; (3) agents which depress the nerves or nerve centres which exercise a restraining or inhibiting influence over an organ, thus allowing greater freedom of activity in its function.

As a precise definition, believed to be sufficiently inclusive, he suggested the following: A stimulant is any agent which increases temporarily the efficiency of a function by improving the innervation or increasing the activity of an organ or by lessening the restraint to its action.

THE TREATMENT OF CHRONIC COLITIS.

This paper was read by DR. JESSE SHOUP of Washington. He made no division of chronic colitis, but treated under the one general head mucous, membranous, follicular and ulcerative colitis, believing that these were simply different stages of the same disease. He thought that the reason why most cases of chronic colitis occur in women was because a large percentage of women are found to suffer from gastroptosis, enteroptosis and nephroptosis. He had never seen a case of the disease in which gastroptosis or enteroptosis was not present in some degree. Improperly prepared chyme entering the intestine, causing first, irritation, and later inflammation, appeared to be the cause of chronic colitis, and he thought the first thing to do was to remove the cause of the indigestion. Believing this cause to be found chiefly in the displaced organs, it was his custom always to replace them and hold them in position by a properly fitted corset made to measure. The following is a *resume* of the treatment recommended:

(1) Treat the attack of pain which precedes the passage of mucus by giving a hypodermic of morphine and atropine, and promote the thorough evacuation of the bowels by giving large doses of castor oil by the mouth and high enemata of oils or alkaline solutions. (2) A carefully selected diet to suit the individual case, after a chemical examination of the stomach contents has been made. (3) Assist digestion and allay fermentation. (4) Keep the bowels open by means of oils by the mouth, these having the double office of laxative and lubricant. (5) Apply suitable support to overcome any ptosis of the abdominal organs. (6) Local treatment by means of astringent enemata and oils, and topical application of the same when necessary. (7) See that the patient gets sufficient rest in the recumbent position and, where practicable, a change of air to mountains or seashore.

ARTERIO-SCLEROSIS.

A paper by DR. O. T. OSBORNE of New Haven, in which he suggested a theory as to why the varied acknowledged causes of arterio-sclerosis should produce the one condition. As the suprarenal glands, so far as known, furnish *par excellence* the vaso-constrictor stuff for the organism, and the thyroid the vaso-dilator stuff, he thought it reasonable to conclude that any marked increase of blood-tension must be due to a diminution of the thyroid or an increase of the suprarenal secretion, or to both. Whatever might be the primary cause of arterio-sclerosis, whether such factors as old age, nervous strain, chronic lead poisoning, gout and kidney insufficiency, or whether pus tension, he said that any treatment of the condition to be successful must aim to diminish the high blood pressure. This can be accomplished well by thyroid extract in small doses, if we believe there is evidence of diminished thyroid secretion, and it must be remembered that any small dosage of iodine or iodides will stimulate the thyroid gland to greater activity. Hence the long known value of this drug in arterio-sclerosis. He thought it possible that in the future one of the suprarenal glands might be removed, or its artery tied, in gout and arterio-sclerosis.

ARTHRITIS DEFORMANS AND ITS TREATMENT.

A paper on this subject was read by DR. L. KOLIPINSKI of Washington. The indications for treatment of this extraordinary malady, the etiology of which still remains undiscovered, were summarized as follows: (1) To relieve pain; (2) correct the stiffness and rigidity of the affected joints and muscular contractures; (3) increase the muscular strength; (4) cure the anemia; (5) increase where necessary the body weight; (6) symptomatically to regulate or slow the pulse.

To fulfil these indications, three classes of agencies are necessary, and so indispensable is each that no two alone will suffice to achieve good results. They are, first, for pain, anemia, the rapid pulse, and malnutrition, arsenic; second, for stiffness, contracture and muscular atrophy, voluntary exercise; third, for weakness, anemia, loss of weight and pain, the improvement of nutrition by increasing and selecting the food supply. The principle to be impressed upon the minds of the afflicted is that rest for a limb is harmful. Rest in bed aggravates the disease by favoring immobility of the joints; daily exercise is beneficial, though for a time productive of pain and discomfort. Mechanical treatment of the active kind is best in all cases; the patient must be encouraged to help himself; passive exercise is demoralizing because it produces apathy and engenders an expectation of improvement that does not come. Local applications are of temporary value and purely anodyne. The best agent for this purpose is probably the emplastrum hydrargyri, U. S. P. The remedies for the treatment of articular rheumatism and gout are not only useless, but do harm.

SYMPOSIUM: RECENT ADVANCES IN SPECIAL THERAPEUTICS.

The different topics were in the hands of the following writers: "Ophthalmology and Otology," Dr. D. B. St. J. Roosa, New York; "Gynecology," Dr. J. T. Kelley, Jr., Washington; "Surgery," Dr. Carl Beck, New York; "Materia Medica," Dr. A. A. Stevens, Philadelphia; "Physiological Therapeutics," Dr. S. S. Cohen, Philadelphia; "Electro-Therapeutics," Dr. W. J. Morton, New York; "Orthopedics," Dr. R. A. Hibbs, New York; "Dermatology," Dr. E. B. Bronson, New York; "Laryngology and Rhinology," Dr. C. H. Knight, New York; "Genito-Urinary," Dr. James Pedersen, New York; "Pediatrics," Dr. N. P. Barnes, Washington; "Obstetrics," Dr. E. H. Grandin, New York; "Neurology," Dr. Frederick Peterson, New York.

Third Day, June 4.

The following officers were elected for the ensuing year: President, Dr. Oliver T. Osborne, New Haven; first vice-president, Dr. J. N. Hall, Denver; second vice-president, Dr. Carl Beck, New York; third vice-president, J. V. Shoemaker; censors, Drs. E. H. Long, Buffalo, T. E. Satterthwaite, New York, D. O. Leech, Washington; members of the Judicial Council, for the term ending 1909; Drs. T. E. Satterthwaite, New York, H. H. Barker, Washington, J. Blake White, New York; chairman of the Executive Council, Dr. R. W. Wilcox, New York. The next meeting of the Society is to be held in Philadelphia May 4, 5 and 6, 1905.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

Meeting of April 26, 1904, the President, Dr. J. B. Swift, in the chair.

Dr. J. Bapst Blake reported

A CASE OF URETERAL CALCULUS.[1]

Dr. J. G. Blake: Many years ago I was called to a young man suffering from enormous distention of one of his kidneys. I had Drs. G. W. Gay and A. T. Cabot see him in consultation, and they concurred with me that his condition was not such as to warrant an operation. He died shortly afterwards, and at the autopsy it was found that the distended kidney had perforated the diaphragm and that one pleural cavity was filled with urine. The corresponding ureter was as large as a piece of garden hose, and at the point where the ureter enters the bladder it was blocked by a calculus nearly, if not quite, as large as the one the reader has shown. It was L-shaped, with the small end projecting into the bladder. In talking the matter over with Dr. Fitz he suggested that the calculus probably could have been felt by rectal examination, but that did not occur to us.

Dr. D. McIntire: I was present at Dr. Keyes' operation on this case. A stone was removed about a third the size of the one the reader has shown. At that time a bougie was passed down into the bladder without encountering anything. I feel that the stone Dr. Blake removed must have been present at the time of the first operation, as it seems almost too large to have grown in the short space of time between the two operations. On the morning of the day when I called Dr. Blake, the distended portion of the kidney showed a distinct cyanotic hue which had been relieved by the escape of some pus.

Dr. B. Tenney: In looking over the literature on the subject in connection with the article to which Dr. Blake has referred, I found only two cases in which the stone ruptured the wall of the ureter. One of these was a boy who had a collection of urine with pus in the left iliac region.

The other was a case referred to by Sir Spencer Wells in which a calculus ulcerated into the rectum from an abscess in the vicinity of the prostate, and which was supposed to be a ureteral calculus. There is no case on record where a ureteral calculus has ruptured into the peritoneal cavity, so far as I know.

Among the interesting problems which suggest themselves is that of the possibility of dissolving these calculi by chemical action, and occasionally such a case is reported. One such case, which provoked considerable discussion at the time, had the typical symptoms and showed an x-ray shadow which disappeared after the use of one of the modern "solvents." I have been told by the gentleman who reported the case that three years later this same kidney was operated upon and stones were removed.

It is apparently true that renal and ureteral calculi are more common in women, and vesical calculi are more often found in men. The first condition may be due to the greater frequency of bladder infection in women which may result in ascending infection of the ureters and renal pelves.

The greater frequency of stone in the male bladder has been accounted for by the difference in the length and dilatability of the two canals, the female urethra allowing fragments to escape, while the same size would remain in the male bladder and form nuclei for larger vesical stones. It seems to me that their escape from the bladder depends entirely upon the size and location of the internal meatus which does not differ in the two sexes, except as it may be distorted by prostatic deformity, and this we now know to occur even in the young male more frequently than was formerly believed.

The most interesting question is that of the formation of these stones. According to the researches of Ebbstein and Nicolaier, it appears that animals of various kinds fed on oxamine, after a time develop areas of necrosis in the epithelium of the pelvis of the kidney, and the dead cell material from these necrotic areas forms nuclei around which the urinary salts deposit. These show later as renal, ureteral or vesical calculi. Their theory is that necrosis of this epithelium, following infection, or excretion of some irritant poison,

[1] See page 463 of Journal.

or the combination of the two, is an adequate and probable cause for the formation of these calculi in the human individual. Until a more plausible theory is presented this will stand, and the constant and thorough flushing of the urinary channels with pure water will remain the most successful way of preventing these interesting, but undesirable, deposits.

DR. H. E. MARION: I recall a case in which the passage of a calculus was proved in a rather unusual manner. From a patient's symptoms I suspected the passage of a renal calculus and told the man to be on the watch for it. Some months later he experienced a sudden pain during coitus and the calculus was found in his wife's vagina.

DR. J. B. BLAKE: It is greatly to be regretted that an autopsy could not have been obtained, but that was out of the question. All that was permitted was the passage of a sound into the bladder which showed that there was no calculus in it. I have no idea when the stone in the ureter first appeared. Theoretically, if a stone blocks the pelvis of the kidney, the kidney contracts, while if the ureter is only partially blocked, the kidney dilates. Here, however, the ureter may have been partially blocked for years and its final total occlusion only caused by the rapid increase in size of the stone in the last few months of the patient's life.

DR. L. V. FRIEDMAN reported

A CASE OF COMA AFTER LABOR.[2]

DR. J. B. BLAKE: As bearing on the use of forced liquids in this case under the supposition that it was possibly eclampsia I have been much interested in the conclusions of Van Noorden, who has shown that in certain cases of nephritis the ingestion of large quantities of water is practically the worst thing that can be done, as the kidney is irritated by even the passage of water. This statement from so good an authority is so contrary to the recognized methods of treatment that it deserves careful attention.

Recent Literature.

Food Inspection and Analysis. By ALBERT E. LEACH, S.B., Analyst of the Massachusetts State Board of Health. First Edition. pp. 787. 278 illustrations, including a large number of photomicrographs of genuine and adulterated articles of food. John Wiley & Sons. 1904.

This comprehensive volume is undoubtedly the best work upon food analysis and inspection yet published in English. The duties of a food analyst, as here set forth, comprise much more than is embraced in the term "analytical chemist," since there are very many articles of food wherein the fact of adulteration is determined, not so much by chemical analysis, as by the use of the compound microscope, aided by the well-developed senses of smell, taste, sight and feeling.

In the twenty years or more of work performed in the laboratories of the Massachusetts State Board of Health, about 150,000 samples have been examined, embracing every variety of food, whether liable to adulteration or not, and the results of this labor are intelligently set forth in this volume.

The following topics show the scope of the work: Food analysis and state control; the laboratory and its equipment; food, its functions, proximate components and nutritive value; general analytical methods; the microscope in food analysis; milk and milk products; flesh foods; eggs; cereals, legumes, etc.; tea, coffee and cocoa; spices; edible oils and fats; sugar and saccharine products; alcoholic beverages; vinegar; artificial food colors; food preservatives; artificial sweeteners; canned vegetables and fruit products; flavoring extracts.

In an appendix, further information is presented relative to the use of the immersion refractometer, the detection of added water in milk and the adulteration of maple sugar and syrup.

In general the author deals with the composition of food and gives such analytical processes as are most needed by the sanitary chemist, or by the student who wishes to become familiar with the proximate constituents of food materials. Brief synopses of processes of manufacture and of preparation of certain foods are given, in cases where impurities are suggested incidental to their preparation.

The photomicrographs are of three kinds: 1. Illustrations of powdered pure foods and powdered adulterants; 2. Chosen types of adulterated foods; 3. Permanently mounted sections of foods and their adulterants.

Aside from the practical value of the work, it is delightful to find in the dedication the following tribute to the character of one whose transparent virtues have left to all fellow workmen in the field of public health, a fragrant memory.

"Affectionately dedicated to the memory of
Charles Pomeroy Worcester,
former analyst of the Massachusetts State Board of Health, whose lovable personality and sterling integrity were a constant inspiration during many years of close companionship to the author."

Epilepsy and its Treatment. By WILLIAM P. SPRATLING, M.D., Medical Superintendent of the Craig Colony for Epileptics. 8vo. pp. 522. With 30 plates and 16 illustrations in the text. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

The volume before us is based upon the writer's experience as superintendent of the Craig Colony, and contains many statistics drawn from the records of that institution, tabulated with painstaking care. Beyond these statistics, however, the work is unsatisfactory. Familiar authorities are quoted *verbatim*, and the familiar facts concerning epilipsy are once more rehearsed at length with statistics to show the relative frequency of certain conditions, but, with a single exception, we gain very little new light upon the subject, and the study of the literature of the subject has been quite superficial. Moreover, the book labors under the defect of having been written from the asylum standpoint. The importance of asylum care is unduly emphasized, and the author's views are naturally colored by statistics and experience of the worst type of cases. The physician who has to do with the large class of mild epileptics who

[2] See page 464 of JOURNAL.

do not need asylum treatment will, therefore, often fail to find the information he needs. Furthermore, the writer apparently lacks a general knowledge of nervous diseases to aid him in elucidating that difficult problem of diagnosis between idiopathic epilepsy and other forms of convulsive disease. Drs. L. Pierce Clark and Thomas Prout have written a chapter on the pathology of epilepsy which is in striking contrast to the rest of the book. Not only are they familiar with the recent literature, but their own work, already published, is of high value and a definite advance in our knowledge of the subject. Dr. Clark also adds a chapter on the status epilepticus which is also worthy of praise.

A Practical Treatise on Genito-Urinary and Venereal Diseases and Syphilis. By ROBERT W. TAYLOR, A.M. M.D., Clinical Professor of Genito-Urinary Diseases at the College of Physicians and Surgeons (Columbia University), New York; Consulting Genito-Urinary Surgeon to Bellevue Hospital and to City (Charity) Hospital, New York. Third Edition. Philadelphia and New York: Lea Bros. & Co. 1904.

The third edition of this work is secure of the welcome which the previous works of its author have always received. It has been improved, as compared with the former editions, by the revision which it has undergone whereby it has in most respects been brought up to date. It is essentially practical, and presents in small compass the more important features of the special subjects composing it, in a manner which permits the student to pick them out and assimilate them readily, and which avoids the contrary qualities seen in some of the more extended works, which sometimes hide much that is good in a too great mass of detail. The custom of combining syphilis together with genito-urinary surgical diseases in one volume has always seemed to us to be objectionable, and if our opinion on this point is correct, the work is open to the criticism of having followed this plan which is, however, that which has usually been adopted by the writers on the subjects. There seems to us to be a lack of a proper sense of proportion with respect to the relative prominence given to certain of the subjects of minor importance as compared to some of those of greater interest and consequence. For example, seven pages are devoted to the consideration of varicocele, and not quite a page to cystoscopy.

Again, the whole subject of the affections of the kidney is included in eighteen pages, a page and a half to renal calculus, and the matter of kidney operations is compressed into two pages, while there are eighty-six pages given up to gonorrhea. We should be sorry to have had any of the latter omitted, but equally we should have appreciated a few additional ones addressed to some of the more important divisions of the subject. The venereal maladies are better and more fully rendered than some of the more surgical aspects of the subject. The illustrations, most of which are original, are admirable, and the arrangement and sequence of the headings and divisions is logical and excellent.

Dudley's Gynecology. A Treatise on the Principles and Practice of Gynecology. By E. C. DUDLEY, A.M., M.D., Professor of Gynecology in the Northwestern University Medical School, Chicago. New (4th) Edition. Revised and enlarged. Octavo, 771 pages, with 401 illustrations, of which 50 are in colors, and 18 full-page colored plates. Lea Brothers & Co., Phila. 1904.

This fourth edition is practically a new book because of extensive revisions and additions. The author's classification of the different diseases according to their causation and pathology, instead of the usual classification according to the organ or part in which the disease is located, is somewhat confusing to the average reader, although a search for any given topic is rendered less difficult by a good index. Its advantages are shown in the grouping together of vulvitis, vulvo-vaginitis and vaginitis and describing them as one disease, these affections being almost invariably associated in practice.

It is refreshing to note the absence of advertisements of instrument makers; for the most part instruments are figured only as they appear while in use in the various operative procedures. The headings and sub-headings are so numerous and so clearly printed that there is no excuse for the student's going astray; it is questionable, however, whether by such a free use of headings and the placing of so much of the text in columns, space has not been wasted and the bulk of the book needlessly increased.

The treatment of eczema vulvæ seems to us rather insufficient, and the amount of space devoted to pruritus vulvæ altogether too large. We regret to note that the Emmet curette forceps, as an adjunct to the curette, and also the bivalve speculum, two very useful instruments, have no place in the book. The chapter on chorio-epithelioma is neither as full nor as explicit as the importance of the disease merits, and, in the discussion of the operative treatment of chronic inversion of the uterus, there is no reference to the work of Oui and the more recent operations for the relief of this condition. In the treatment of mal-locations of the uterus, as they are styled, lateral elytrorrhaphy has been abandoned, and the author's new operation on the anterior wall of the vagina is substituted.

Illustrations are very freely used; they are mostly original and are well executed. The original plates on pages 491, 492 and 493, showing the development of the generative organs, are the most satisfactory we have seen. The portions of the book treating of plastic surgery, especially the chapters on genital fistulæ, are the work of a master in this department and merit careful study.

The author has treated the diseases of women from a medical as well as from a surgical point of view. The book is clearly and concisely written; it is brought well up to date, and repre-

sents not only Dr. Dudley's ripe experience, but also the best culled from the literature; it is altogether one of the best textbooks of gynecology in the English language.

AMERICAN EDITION OF NOTHNAGEL'S PRACTICE.

Tuberculosis and Acute General Miliary Tuberculosis. By DR. G. CORNET, of Berlin. Edited with additions, by WALTER B. JAMES, M.D., Professor of the Practice of Medicine in the College of Physicians and Surgeons (Columbia University), New York. Authorized translation from the German, under the editorial supervision of ALFRED STENGEL, M.D., Professor of Clinical Medicine, University of Pennsylvania. Octavo volume of 806 pages. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

This is the seventh volume to be issued in Saunders' American Edition of Nothnagel's Practice. Four more volumes are promised for early publication.

This volume appears at a time when the subject of tuberculosis is exciting unusual attention within the profession and on the part of the general public. The work is worthy of the series to which it belongs and of the names on the title-page, and that is saying much. The editor has performed his functions judiciously in bringing the book well to date, both in its arrangement and in the additions.

A Manual of Practical Medical Electricity. By DAWSON TURNER, B.A., M.D., F.R.C.P.E. Fourth edition, revised and enlarged. 8vo. pp. xxiv, 435. With 200 illustrations. New York: William Wood & Co. 1904.

This new edition has been thoroughly revised and contains over thirty new illustrations and about forty pages more of text. The additions have been mainly in the last section, on Röntgen rays, radium radiations, the Finsen light and high frequency currents, bringing the work fully up to date. We can merely repeat the commendation expressed of the previous edition.

Portfolio of Dermochromes. By PROFESSOR JACOBI. English adaptation of text by J. J. PRINGLE, M.B., F.R.C.P. Vol. II. New York: Rebman Company.

The second volume of very excellent illustrations of cutaneous affections by the process known as citochromy, the invention of Dr. Albert of Munich, has appeared, and maintains excellently the high standard set by its predecessor, which we have before noticed. The illustrations rank among the best pictorial expressions of skin diseases, and the work is to be heartily commended.

ACCORDING to the *Journal of the American Medical Association*, a smallpox patient at the Isolation Hospital in Chicago gave birth to a boy baby October 10, and within twenty minutes of its birth the child had been vaccinated.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, OCTOBER 27, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

A DEFENCE OF THE APPENDIX.

WE have so often been told that the appendix is a useless organ and that its removal, far from having any deleterious effect upon the economy, serves only to remove an ever-present danger that it is with a feeling of positive satisfaction that we turn to the latest Huxley lecture on the subject of "The Function of the Cecum and the Appendix." The lecture this year was delivered by Mr. Macewen, regius professor of surgery at Glasgow, whose words on the subject should be given a most careful consideration. In general, his attitude toward the inquiry is that presumably neither the cecum nor the appendix is so useless as ordinarily maintained and that they may even be of actual value in the processes of digestion. He apparently has small sympathy with the tendency, frequently enough observed, of removing the appendix at the slightest possible cause, and even, as we believe is at times done, removing it, although healthy, when the abdomen has been opened for other purposes.

Acknowledging the fact that he may be out of fashion, Mr. Macewen still holds to the possibility that the appendix may have some utility and therefore should not be so lightly tampered with. "One would prefer," he says, "normal man as he comes into this world to the pared and mutilated animal which would be produced if the attempts for betterment which some folks propose were carried into effect. With all his alleged imperfections, normal man is a much more perfect animal than the physiologist or the surgeon can make him."

Regarding the appendix, the whole question comes down to the point as to whether or not the appendix is a wholly useless organ. To answer this question, which he sets himself, it is essential to consider the cecum and appendix together.

This he does in a most lucid manner, and finally concludes that inasmuch as man is both a carnivorous and an herbivorous animal, analogous with other animals lower in the scale, man should possess not only a stomach and small intestine but also a cecum, the cecum being of moderate size because of the varied character of his diet, and because the vegetable food consumed is usually of the more tender and nutritive varieties.

Mr. Macewen brings to his task a large series of data obtained from observations on men wherein various operations had been done upon the lower intestine, proving to his mind that the arrest of the function of the cecum resulted in disturbed digestion, showing itself in diarrhea and in a general diminution of strength. He finds also, as a result of observations of the cecum through defects in the abdominal wall, that movements analogous to peristalsis occur in this portion of this intestinal tract, and that some of these cecal movements originate in the appendix, undulatory movements running from the appendix and leading secondarily to the contraction of the cecum. Further investigations along the same general line have led to the conclusion that there is a nervous mechanism which regulates the movements of the appendix and cecum, and also controls the ileo-cecal valve, and that the exudations of the appendix and cecum may be augmented or diminished under varying circumstances. The secretions of the appendix Mr. Macewen regards as probably a valuable aid to digestion. Admitting, then, as he believes he has proved, that the cecum and appendix perform an important part in the final stages of digestion, it is not surprising that interference with the function of this part should give rise to disease. It is, therefore, the fact that, varied as the causes of appendicitis may be, most of them are closely associated with the digestive processes, as shown, for example, by Deaver's wide experience. Granting this, certain lessons as to prevention may be learned.

Mr. Macewen closes his altogether suggestive lecture by certain eminently practical remarks concerning one's mental state during digestion, the habit of rapid eating and various other ills which the hurry of modern life entails. It is urged that a free mind with the hope of enjoyment of the food, thorough mastication in order that the processes of gastric digestion may have a good beginning, and, therefore, the later digestive processes be the better carried out, should act as a prophylaxis. Mr. Macewen's final paragraph, modest in statement, but suggestive for further investigation, is as follows:

"For many years I have believed that the human cecum and appendix are of value in digestion. The facts pointing in that direction have accumulated slowly, and are not all garnered; many require still to be investigated. One would have preferred to have waited until they were gone over again, re-tested, and either verified or dropped out. But 'Art is so long' that I have ventured to present you with an unfinished picture, which I hope some of you will be able to correct and finish. What has been said is merely a contribution to the subject. In dealing with it in the future remember what Huxley says: 'Let us sit down before fact as a little child, be prepared to give up every pre-conceived notion, and to follow humbly wherever Nature may lead.'"

As we suggested at the outset, it is a relief to learn that the appendix possibly has a use and that its conservation is amply justified by physiological facts. That a great many people get along exceedingly well without the appendix is unquestioned, but that those of us who still retain the organ may continue to live with a clear conscience is a gratification.

REPORT OF THE SURGEON-GENERAL OF THE UNITED STATES ARMY.

The report of the Surgeon-General of the Army to the Secretary of War for the year ending June 30, 1904, has just reached us. The pamphlet as usual contains a large amount of information regarding the medical service of the army, all of which no doubt is of great interest to the service itself, and much of which is likewise of interest to physicians at large.

The army medical school has apparently met with success in its training of men in the peculiar duties which now face the physician serving in the army. The last session of this school ended April 5, 1904, with a class of twenty-seven student officers, all being assistant surgeons recently appointed in the medical corps of the regular army. Certain changes in the course have been effected whereby it is believed a better estimate of the probable value of young medical men may be obtained so that as soon as they begin their duties as commissioned officers they will be proficient in an administrative capacity. It is of interest to note the fact that the contract surgeons of the army have reached the lowest number since 1898. The loss during the year was forty-seven, leaving two hundred and twenty-nine in service at the close of the fiscal year. The contract dental surgeons, to whom we have previously

alluded, are now maintained at the number of thirty, allowed by act of Congress in 1901. They are kept constantly employed.

The medical department of the army has had an exhibit at the St. Louis Fair, consisting of a field hospital with a capacity of one hundred and eight beds. The hospital wards comprise eighteen tents of the Munson pattern, and the arrangement of the various tents is such as would obtain in actual service. This exhibit has received commendation from visitors. In addition a daily exhibition drill by a detachment of the hospital corps is given in first aid to the wounded, litter drill, various means of transporting wounded, etc. These drills have proved a source of attraction to visitors to the fair. The nurse corps has been maintained at its maximum strength of one hundred nurses on active duty, and during the year upwards of three hundred graduate nurses have applied for positions on this corps. These nurses, for whom there is an increasing demand, are assigned especially to five hospitals, two in the United States and three in the Philippines. A plea is made for a more generous provision for the subsistence of this body of nurses who have proved themselves efficient and alive to the dignity of their position.

The general health of the army has steadily improved since the Spanish War, owing largely to various sanitary improvements which have been carried out in the conditions under which soldiers live. It is especially gratifying that there has been a decided diminution in illness in the Philippines and in Cuba and Porto Rico. With an average strength of 19,029 troops in the Philippine Islands, 1,074 were sent home because of illness during the year, and there were two hundred and seventy deaths among the American troops remaining on the islands. Those sent home were chiefly incapacitated through intestinal disease. Tuberculosis played a small part, and malaria also has not proved so great a menace as was expected. Interesting statistics are given of the race prevalence of disease in the Philippines. From this it appears that the Filipinos showed a higher rate of admission for disease during the year than the white troops. Malarial fever, beri-beri and smallpox were more prevalent among the Filipinos, whereas dysentery, disease of the nervous system and measles were more prevalent among the white soldiers.

The pamphlet takes up many other points of positive interest, for the discussion of which we must direct the reader's attention to the original document. The volume ends with a classification of diseases based on an official nomenclature in use since 1895 with a slight modification necessitated by advancing knowledge and changed conditions. Beginning with this year, army statistics will be based on the international classification, thereby leading to a still more satisfactory and generally useful basis of statistical comparison.

SUPPRESSION OF QUACKERY.

THE Comitia Minora (Executive Council) of the Medical Society of the County of New York has issued a statement to the public in regard to the suppression of quackery. Having referred to the publicity given by the neswpapers to the paper on "Medical Quacks," recently read by the counsel of their society before the Society of Medical Jurisprudence, it is mentioned that on one point alone does there seem to be any misapprehension. Several papers have asked why, with many thousand charlatans now practicing in New York, the County Society has succeeded in convicting only about five hundred of them in five years. It was therefore determined to make an official statement giving the reasons why the percentage of cases taken up is so small, and these reasons are presented as follows:

(1) Lack of funds. In order to make the work of the society as effective as possible, its scientific features have been curtailed for the purpose of devoting the funds in the treasury to the suppression of dangerous quacks. For the past five years every dollar available has been expended for this purpose.

(2) Inherent difficulties in the nature of prosecutions. In scarcely one case out of a hundred will the real victims of the charlatan consent to give evidence. They report their cases to the society on condition that they shall not be called as witnesses. This is to avoid the exposure, humiliation and disgrace which in many instances would follow publicity. The society is therefore obliged to procure its own evidence at great expense against the charlatans it prosecutes.

(3) Radical defects in the medical law. There is no definition as to what constitutes the practice of medicine in the state of New York, and until the legislature furnishes a satisfactory definition great uncertainty will exist. The society has repeatedly asked the legislature for such a definition, and has been as often refused.

(4) Failure of the newspapers to co-operate. The modern charlatan could not exist without

the publicity given his advertisements by the press. If the papers would refuse advertisements of drugs for a criminal purpose, of illegal lying-in establishments, of the so-called specialists for diseases of men only, and of the "consumption cure" frauds, it would not be difficult for the society, even with its present lack of funds, to rid the community of the chief offenders. These vicious advertising charlatans draw their recruits from innocent victims attracted by the advertisements unblushingly received by many New York newspapers.

MEDICAL NOTES.

INSANITY IN THE PHILIPPINES. — According to a recent report of the Board of Health of the Philippine Islands, the returns so far as ascertainable show that there are 4,015 insane persons in the various provinces, of whom 2,164 are males and 1,851 are females. Accommodations are needed for at least 5,000 insane patients.

THE BOARDING-OUT OF THE INSANE IN PRIVATE FAMILIES. — The Commissioners of Lunacy in New York in their recent annual report give special consideration to the boarding-out of the insane in private families. The various resolutions unanimously passed at the Congress of Alienists at Antwerp in 1902 in favor of the application of family care to its fullest extent as a recognized and valuable means of providing for a large number of the chronic, dependent insane are quoted and allusion is made to the successful working of the boarding-out system in Massachusetts. The commission accordingly recommends the passage of an act to so amend the insanity law of New York as to secure the adoption of this system in that state as a part of the general scheme of caring for the insane. The provisions of the proposed act are largely the same as those in force in Massachusetts.

OFFICERS OF MISSISSIPPI VALLEY MEDICAL ASSOCIATION. — The following officers were elected at the thirtieth annual meeting of the Mississippi Valley Medical Association, held at Cincinnati, O., Oct. 11–13: President, Bransford Lewis, M.D., St. Louis; first vice-president, Frank Parsons Norbury, M.D., Jacksonville, Ill.; second vice-president, J. H. Carstens, M.D., Detroit, Mich.; secretary, Henry Enos Tuley, M.D., Louisville, Ky.; assistant secretary, John F. Barnhill, M.D., Indianapolis, Ind.; treasurer, S. C. Stanton, M.D., Chicago, Ill.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — **For the week ending at noon Oct. 26, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 59, scarlatina 21, typhoid fever 33, measles 1, smallpox 0.**

RECEPTION FOR DENTAL STUDENTS. — The Administrative Board of the Dental School of Harvard University held an informal reception for the students of the school at the Harvard Union, Cambridge, on Saturday evening, Oct. 22. President Eliot made an address.

THE BOSTON SOCIETY OF MEDICAL SCIENCES. — A meeting of the society was held at the Harvard Medical School Oct. 25. The following papers, forming the third annual report of the Cancer Committee of the Harvard Medical School, were presented: Dr. F. B. Mallory: A contribution to the classification of tumors. Dr. R. B. Greenough: On the nature of the cell inclusions of cancer. Dr. Walter C. Howe and Dr. Robert Vose: The effects of the Röntgen ray on cancer. Dr. Edward H. Nichols: Implantation of tissue and its relation to cancer.

NEW YORK.

MEDICAL QUACKS. — At the Society of Medical Jurisprudence on Oct. 10, C. S. Andrews, counsel for the Medical Society of the County of New York, read a paper on "Medical Quacks, Their Methods and Dangers." In the course of it he commended the high-class daily newspapers which refuse to print medical advertisements, and stated that no less than fifty advertisers in one New York paper had been convicted of breaking the laws.

VACCINATION IN PUBLIC SCHOOLS. — The right of public schools in the state of New York to exclude from attendance pupils refusing to be vaccinated was affirmed by the Court of Appeals on Oct. 18. The appeal in the case at issue was brought by Edward C. Viermeister of Brooklyn, who declined to comply with the regulations of the New York City Board of Education and have his ten-year-old son, a pupil at School No. 12 in Brooklyn, vaccinated. The Court of Appeals upholds the constitutionality of section 200, chapter 661 of the laws of 1903, enforcing the vaccination of public school children, and approves the action of the lower courts, which decided that this statute was a legitimate exercise of police power. The appellant argued that vaccination did not prevent smallpox and that the operation practically amounted to assault.

Obituary.

FRANCIS BOOTT GREENOUGH, M.D.

FRANCIS BOOTT GREENOUGH was born in Boston, Dec. 24, 1837, and died in Brookline, Oct. 16, 1904, in the sixty-seventh year of his age. When a lad of seven years he was taken in a sailing packet by his parents, Mr. and Mrs. Henry Greenough, to Europe, where he remained for five years. On their return the family settled in Cambridge and the boy was sent to the high school. Mr. Epes Dixwell prepared him for college, and he graduated at Harvard in the class of 1859. The following autumn he entered the Lawrence Scientific School and studied engineering and higher mathematics under Prof. Henry Eustis. He also assisted his father in architectural work and was sent to Pisa, Italy, in 1860, to perfect himself in what was at that time intended to be his future calling. But a strong taste for medicine led him finally to abandon architecture and to enter the medical school at Pisa. Although he did not graduate at this institution, he remained there for one or two years and brought back with him to this country many interesting reminiscences of the medical practice in Italy at that period. It is interesting to recall the fact that it was still a common occurrence in Pisa to perform surgical operations without an anesthetic, and Dr. Greenough often referred to the part which as a student he used to play in holding the patient down while the knife or cautery was being used.

On his return to this country he entered the Harvard Medical School where he graduated in 1866, having also served a year as interne or, as it was then called, " house pupil," at the Massachusetts General Hospital. Near the close of the Civil War he served as acting assistant surgeon to the Portsmouth Grove Hospital and also at Elmira.

After graduation he passed the year 1866–67 in Vienna where he became one of the early American contingent which counted many names well known in medicine in Boston to-day. Among his experiences there was an opportunity to study cholera which on his arrival was causing one hundred deaths a day. A large service of the Allgemeines Krankenhaus was devoted to this disease. Although the wards were neat and orderly, there was no special attempt at isolation, and cases of smallpox and other contagious diseases were admitted freely to Oppolzer's wards at that time for the purposes of teaching.

On his way home he passed through Paris, where in company with his cousin, the late Dr. T. B. Curtis, he had an opportunity to become familiar with the most interesting features of hospital practice of the French school at that period. He began practice in Boston in 1867, and we find him enrolled as one of the physicians of the dispensary in that year. His service there was a long one, and his wide experience and excellence as a general practitioner of medicine and surgery made him a valuable member of the staff. In 1874 he was made physician to the department of diseases of the skin, where he remained in continuous service until about the year 1892. He had gradually withdrawn during this period from the practice of general medicine, though many of his old patients constantly sought his advice. He was lecturer on venereal diseases in the Harvard Medical School from 1871 to 1875; clinical instructor in the same, 1875–95. He was elected a member of the American Dermatological Society in 1878, and was president of the same in 1890–91. He was also a member of the Association of Genito-Urinary Surgeons, and a member of the Boston Dermatological Club.

He was a valuable man in all these positions, honorable, straightforward, reliable, in every word he spoke or wrote. His principal dermatological articles were on herpes progenitalis, scabies and psoriasis. He was one of the first to do away with the local cauterizations and to pave the way for the more rational treatment of the present day. He was not a voluminous writer, but he was an excellent observer and good diagnostician and gifted with enviable common sense which characterized all his writings and discussions. His opinions were, therefore, held in high repute by his colleagues.

No man of his time in college was better liked as a friend and companion than " Frank " Greenough. To a naturally frank and affectionate nature there was added a never failing politeness and charm of manner which endeared him to all with whom he came in contact. Although not an ambitious student while in college, his subsequent course in the scientific school was marked by unusual ability. Had he chosen architecture as a profession, he would have been most successful, inheriting as he did the fine artistic perceptions of his family. Indeed, to the end of his life his greatest enjoyment perhaps was in the gratification of his critical judgment in all departments of art.

He had been so situated as to be able to select the best there was in the educational facilities of the day from many quarters, and these opportunities, combined with a remarkable power of quick adaptation to the work in hand, produced a man skilled in many languages and of a versatility quite exceptional. He enjoyed to an unusual degree the gift of mechanical dexterity, and this, with a great love of scenery and of animals, led him often into the woods, not only to fish and shoot, but to study nature from an intelligent and thoughtful standpoint.

He was a most indefatigable reader and a keen judge of men, and possessed much acumen and sagacity in estimating character. All these qualities combined to make a man of most agreeable social qualities, which made him popular with both young and old of many clubs and societies, and at the same time one who was regarded by his professional colleagues as an expert of the highest standing in his chosen specialty.

A long invalidism had somewhat impaired his

faculties, but under skilled treatment he seemed for a while to be regaining strength when a pronounced diabetes brought a speedy end to his illness.

Although Dr. Greenough had dropped out of the professional and the social world for many years before his death, he has left behind him many delightful memories and many a faithful friend to mourn his loss.

Miscellany.

COMMISSION FOR INVESTIGATION OF ACUTE RESPIRATORY DISEASES.

The Commission for the Investigation of Acute Respiratory Diseases, in New York, for the purposes of which Dr. Darlington, president of the Board of Health, recently secured an appropriation of $10,000 from the Board of Estimate and Apportionment, met and organized at the offices of the Health Department on Oct. 18. It is composed of the following distinguished physicians, who, it is understood, render their services gratuitously: Theobald Smith of Harvard University, T. Mitchell Prudden, Edward G. Janeway and L. Emmett Holt of New York, John H. Musser of Philadelphia, William Osler and William H. Welch of the Johns Hopkins University, Baltimore, and Frank Billings of Chicago; together with Thomas Darlington, president, and Hermann M. Biggs, medical officer, of the New York Board of Health. Dr. Darlington made the statement that in New York there had been a steady increase in the death-rate from respiratory diseases since 1886. In the first six months of the present year there were 42,700 deaths in the city, of which 43% were due to respiratory diseases and 19½% to pneumonia alone. It had, therefore, become urgent that additional measures should be taken for the prevention of these diseases and that the public should be more fully instructed how to guard against them. Dr. Janeway was elected president, and Dr. Prudden, secretary of the commission. After a general discussion of the matter in hand it was decided to make a systematic study of acute respiratory diseases as they occur in New York, taking into consideration such data as the following: The character of the germ of pneumonia; the frequency of the occurrence of the germ; the virulence of the occurrence; evidences of communicability; the beneficial effects of thorough mouth disinfection; seasonal relations to the diseases and their occurrence in hospitals and kindred institutions; the geographical relations of pneumonia. Two committees were appointed, one to consider the subject from a clinical point of view, and the other to deal with its bacteriological and pathological aspects. The first consists of Drs. Janeway, Osler, Musser, Billings and Holt, and the second of Drs. Welch, Prudden and Smith.

RECORD OF MORTALITY

For the Week ending Saturday, October 15, 1904.

Cities.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Diarrheal Diseases.
New York	3,908,644	1,222	413	28.97	11.78	2.13	2.13	9.08
Chicago	2,021,086	424	140	30.89	8.25	.94	1.65	11.08
Philadelphia	1,407,968	—	—	—	—	—	—	—
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	542,229	181	52	25.97	7.73	1.10	3.31	5.52
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	108	—	21.29	11.11	5.55	4.63	7.41
Cincinnati	338,277	—	—	—	—	—	—	—
Milwaukee	335,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	58	15	22.41	12.06	—	—	6.90
Boston	617,950	161	47	21.74	13.66	1.86	4.35	8.69
Worcester	136,925	25	5	20.00	—	—	—	8.00
Fall River	119,349	39	16	28.20	12.82	—	—	15.38
Lowell	104,402	34	17	26.47	14.70	5.85	—	2.94
Cambridge	100,998	22	5	22.72	9.09	4.54	4.54	—
Lynn	73,875	15	4	26.66	—	6.67	6.67	—
Lawrence	72,348	16	8	37.50	6.25	—	—	18.75
Springfield	72,020	26	3	15.38	—	3.85	3.85	—
Somerville	70,413	17	4	23.53	5.88	—	—	5.88
New Bedford	68,863	—	—	—	—	—	—	—
Holyoke	50,538	21	10	33.33	14 28	4.76	—	4.76
Brockton	46,601	11	3	27.27	—	—	9.09	—
Newton	39,310	7	3	14.30	28.60	14.30	—	—
Haverhill	39,061	7	1	14.30	14.30	—	—	—
Malden	37,305	13	1	30.80	7.70	—	—	7.70
Salem	37,188	5	1	20.00	—	—	—	—
Chelsea	36,499	6	2	50.00	—	50.00	16.67	—
Fitchburg	36,335	—	—	—	—	—	—	—
Taunton	34,577	9	4	33.33	22.22	—	—	22.22
Everett	30,209	7	1	—	—	—	—	—
North Adams	29,301	3	1	66.67	—	33.33	—	33.33
Quincy	26,798	—	—	—	—	—	—	—
Gloucester	26,121	9	3	—	—	—	—	—
Waltham	25,797	9	4	—	—	—	—	—
Brookline	25,576	—	—	—	—	—	—	—
Pittsfield	22,570	8	—	25.00	—	—	—	—
Medford	21,956	3	—	—	33.33	—	—	—
Chicopee	21,692	2	0	—	—	—	—	—
Northampton	20,314	11	3	18.18	—	—	—	—
Beverly	15,807	1	1	—	—	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	2	—	—	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,500	1	0	—	—	—	—	—
Newburyport	14,478	5	0	20.00	20.00	—	—	—
Woburn	14,315	1	—	—	—	—	—	—
Melrose	13,919	6	—	—	33.33	—	—	—
Westfield	13,809	7	1	—	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	1	0	—	—	—	—	—
Revere	13,609	1	1	—	100.00	—	—	—
Framingham	13,574	—	—	—	—	—	—	—
Peabody	13,406	—	—	—	—	—	—	—
Gardner	12,324	3	—	66.67	—	—	—	—
Southbridge	11,716	4	2	100.00	—	50.00	—	—
Watertown	11,575	5	3	20.00	20.00	—	—	20.00
Weymouth	11,350	1	0	100.00	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 2,517; under five years of age, 774 principal infectious diseases (smallpox, measles, scarlet fever cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 689; acute lung diseases 263, consumption 309, scarlet fever 12, whooping cough 12, cerebrospinal meningitis 18, smallpox 0, erysipelas 2, puerperal fever 7, measles 6, typhoid fever 56, diarrheal diseases 213, diphtheria and croup 53.

From whooping cough, New York 4, Chicago 6, Pittsburg 1, Providence 1. From measles, New York 6. From scarlet fever, New York 8, Chicago 1, Baltimore 2, Pittsburg 1. From cerebro-spinal meningitis, New York 13, Baltimore 1, Worcester 1, Lowell 1, Cambridge 1, Southbridge 1. From erysipelas, Chicago and Providence 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Oct. 1, the death-rate was 15.6. Deaths reported 4,571; acute diseases of the respiratory organs (London) 85, whooping cough 45, diphtheria 72, measles 66, smallpox 1, scarlet fever 43.

The death-rate ranged from 6.4 in Hornsey to 26.5 in St. Helens; London 14.3, West Ham 12.8, Brighton 12.8, Plymouth 15.6, Bristol 13.4, Birmingham 15.1, Leicester 11.6, Nottingham 15.3, Liverpool 22.6, Bolton 19.9, Manchester 16.8, Salford 22.1, Halifax 13.6, Bradford 16.3, Leeds 16.2, Sheffield 16.6, Hull 18.9, Cardiff 14.8, Rhondda 13.2, Merthyr Tydfil 15.1, Burton on Trent 12.0, Hanley 14.7.

METEOROLOGICAL RECORD.

For the week ending October 15, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.			Velocity of wind.			Weather*			Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.		8.00 P.M.		8.00 A.M.	8.00 P.M.		8.00 A.M.	8.00 P.M.	
S.. 9	30.22	54	58	51	85	90	88	W		N	E	5	4	O.	O.		.05
M. 10	29.92	58	68	50	94	87	90	E		S	W	5	14	O.	F.		.02
T.. 11	29.84	59	68	50	83	81	82	S	W		E	14	20	O.	O.		.08
W. 12	30.32	44	50	38	82	92	87	N	E	N	E	20	20	O.	R.		.84
T.. 13	30.26	42	46	37	96	86	91		N		N	18	10	R.	O.		.10
F.. 14	30.12	48	57	38	77	67	72	N	W		N	7	14	C.	F.		0
S.. 15	30.16	53	68	38	67	54	60	N	W	N	W	20	10	F.	C.		0
[illegible]	30.12		59	43			81										1.09

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. [illegible] Means for week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING OCTOBER 12, 1904.

STONER, G. W., surgeon. Leave of absence for eight days from Sept. 19, 1904, under paragraph 189 of the regulations, amended to read seven days only.

WERTENBAKER, C. P., surgeon. Granted leave of absence for one month from date of joining station at Ellis Island, New York, N.Y. Oct. 8, 1904.

ROSENAU, M. J., passed assistant surgeon. Detailed to represent Service at meeting of the Committee on Antitoxin and Immunizing Sera of the Laboratory Section of the American Public Health Association at New York, Oct. 7 and 8. Oct. 5, 1904.

SPRAGUE, E. K., passed assistant surgeon. Granted leave of absence for seven days from Oct. 11, 1904, under paragraph 191 of the regulations.

FOSTER, M. H., passed assistant surgeon. Relieved from duty at Port Townsend, Wash., and directed to proceed to San Diego, Cal., and assume command of the service at that port, relieving temporary Acting Assistant Surgeon B. V. Franklin. Oct. 10, 1904.

ROBINSON, D. E., passed assistant surgeon. Relieved from duty at Port Townsend Quarantine, Wash., and directed to proceed to Port Townsend, and assume command of the service at that port, relieving Passed Assistant Surgeon M. H. Foster. Oct. 10, 1904.

MCCLINTIC, T. B., passed assistant surgeon. Upon being relieved at Tampico, Mexico, by Passed Assistant Surgeon Joseph Goldberger, to proceed to Washington, D. C., and report at the Bureau for further orders. Oct. 10, 1904.

GOLDBERGER, JOSEPH, passed assistant surgeon. Relieved from duty at Monterey, Mexico, and directed to proceed to Tampico, Mexico, for duty, relieving Passed Assistant Surgeon T. B. McClintic. Oct. 10, 1904.

AMESSE, J. W., assistant surgeon. To proceed to San Francisco, Cal., and report, on Oct. 31, 1904, to the chairman of board convened to determine the fitness of Assistant Surgeon Amesse for promotion to the grade of passed assistant surgeon. Oct. 10, 1904.

COLLINS, G. L., assistant surgeon. Leave of absence for three days from Sept. 30, 1904, granted Assistant Surgeon Collins, under paragraph 191 of the regulations, amended to read one day only. Oct. 6, 1904.

FRICK, JOHN, acting assistant surgeon. Relieved from duty at Brownsville, Tex., and directed to proceed to Laredo, Tex., and report to the medical officer in command for duty. Oct. 10, 1904.

JACKSON, J. M., jr., acting assistant surgeon. Granted leave of absence for thirty days from Oct. 26. Oct. 10, 1904.

LAGRANGE, J. V., pharmacist. Granted extension of leave of absence for sixteen days from Oct. 3. Oct. 6, 1904.

APPOINTMENT.

JOHN M. BELL, of Minnesota. Appointed pharmacist of the third class. Oct. 6, 1904.

BOARDS CONVENED.

Board convened to meet at the Purveying Depot, New York, N. Y., Oct. 31, 1904, for the examination of such assistant surgeons as may present themselves to determine their fitness for promotion to the grade of passed assistant surgeon. Detail for the Board: Surgeon H. W. Sawtelle, chairman; Surgeon G. W. Stoner; Passed Assistant Surgeon C. H. Lavinder, recorder.

Board convened to meet at the Plague Laboratory, San Francisco, Cal., Oct. 31, 1904, for the examination of Assistant Surgeon J. W. Amesse to determine his fitness for promotion to the grade of passed assistant surgeon. Detail for the Board: Passed Assistant Surgeon Rupert Blue, chairman; Passed Assistant Surgeon H. S. Cumming; Passed Assistant Surgeon D. H. Currie, recorder.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING OCTOBER 22, 1904.

E. A. VICKERY, assistant surgeon. Appointed assistant surgeon with rank of lieutenant junior grade, from Oct. 11, 1904.

H. W. COLE, assistant surgeon. Ordered to the Naval Museum of Hygiene and Medical School, Washington, D.C., Oct. 22.

A. M. FAUNTLEROY, passed assistant surgeon. Commissioned passed assistant surgeon with rank of lieutenant, from Sept. 28, 1904.

R. C. HOLCOMB, passed assistant surgeon. Detached from the "Mayflower" and ordered home to wait orders.

SOCIETY NOTICES.

AMERICAN SOCIETY OF CLINICAL SURGERY.—The third annual meeting of the Society will be held in Buffalo and Cleveland, Oct. 28 and 29, 1904, under the presidency of Dr. G. E. Brewer, of New York.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The stated meeting will be held at the Medical Library, No. 8, the Fenway, on Saturday, October 29, 1904, at 8.15 P.M. There will be a discussion on: The Care and Prevention of Tuberculosis. E. O. Otis, M.D., The Purposes of the Local and National Societies for the Prevention of Tuberculosis. John Winter Brannan, M.D., New York, The Duty of the Municipality for the care of Tuberculous Patients as illustrated by Recent Advances made in New York. Illustrated by the Stereopticon. Walter J. Marcley, M.D., Rutland, Superintendent at the State Sanatorium, Boston Patients who have been unfit for Rutland. Arthur K. Stone, M.D., The Geographical Distribution of Tuberculosis in Boston in 1890 and 1903. To take part in the discussion: Drs. Knight, Durgin, Grainger, Ernst, Shea, Bowditch and others. Business, The election of Nominating Committee. Supper after the meeting.

A. T. CABOT, President. L. R. G. CRANDON, Secretary.

RECENT DEATHS.

WILLIAM CALDWELL FLOWERS, M.D., M.M.S.S., died in Cambridge, Oct. 20, 1904, aged seventy-two years.

WM. WATKYNS, M.D., died suddenly in Troy, N. Y., Oct. 19, 1904.

SAMUEL WARREN ABBOTT, M.D., M.M.S.S., died in Newton Centre, Oct. 22, 1904, aged sixty-seven years.

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheater of the Boston City Hospital on Oct. 28, from 10 A.M. until 12.30 P.M.: Amputation of Foot; Radical Cure of Inguinal Hernia; Cholecystotomy; Radical Cure of Inguinal Hernia.

BOOKS AND PAMPHLETS RECEIVED.

The Medical Epitome Series. Toxicology. A Manual for Students and Practitioners. By Edwin Welles Dwight, M.D. Series edited by Victor Cox Pedersen, A.M., M.D. Philadelphia and New York: Lea Brothers & Co. 1904.

Concerning the Specificity of the Somatogenic Cytotoxins. By Richard M. Pearce, M.D. Reprint.

The Experimental Production of Liver Necroses by the Intravenous Injection of Hemagglutinins. By Richard M. Pearce, M.D. Reprint.

Cancer of the Pancreas and Glycosuria. An Histological Study in the Changes in the Islands of Langerhans. By Richard M. Pearce, M.D. Reprint.

Suprapubic Enucleation of the Prostate. By H. O. Walker, M.D. Reprint.

Association of American Medical Colleges. Minutes of the Fourteenth Annual Meeting, Held at Atlantic City, N. J., June 6, 1904.

Original Articles.

TREATMENT OF LATERAL CURVATURE.*

BY EDWARD H. BRADFORD, M.D., BOSTON.

A CLASS of curvatures of this kind which come under the surgeon's careful consideration are those characterized by structural changes in the spinal column. Those without such structural changes are amenable to simple measures. The structural changes, leaving out those due to the effect of ostitis, are changes in the elasticity and length of the intervertebral ligaments and spinal muscles, and in the shape and relative positions of the vertebræ and the intervertebral cartilages, and also with the ribs connected with these vertebræ.

Considering the importance of the subject and the value of an erect figure to the working man or woman, the dangers of distortion children are exposed to at school and elsewhere, the possibility of prevention, and the need of careful supervision for years by the family physician, it might be considered strange that the subject had excited so little interest among general practitioners. The subject has not usually been presented, however, in a practical form to the general profession, nor has the importance nor interest of the subject been sufficiently urged.

Viewed as a question of what might be termed as physical mechanics, there is no problem which can surpass that presented by scoliosis in interest, and few affections yield to treatment more satisfactorily if taken in time and if the treatment is properly directed. There has, however, been a lack of simplicity in the writings on the subject, and the general practitioner has been led to regard the affection as not presenting problems of immediate urgency, and belonging to the specialist rather than to the family medical adviser. The truth, however, is that in certain cases the affection is one for the general practitioner, and in all stages and cases it is preeminently necessary for the family adviser and the specialist to act in harmony.

The object of this paper is to present the simple principles and methods of treatment for this class of affections which can be adopted by the profession without demanding the elaborate preparation or outlay not feasible for any but the specialist. It is presumed in this paper that no description of scoliosis or its nature is needed, and attention will be directly turned to the subject of treatment.

The principles of treatment for the non-inflammatory spinal curves of children are similar to what is practiced in the preparatory training of young acrobats, and to those practiced by dentists in correcting deformities of the jaw. The spinal column, being curved and stiff in certain portions, needs to be made more flexible and straightened in those parts. If a distortion has developed or is developing, it must be overcome by adequate pressure applied as constantly as is practicable, and the patient during the years of susceptibility should be shielded from such influences as will interfere with treatment or favor a relapse.

The methods to be employed in the treatment of scoliosis will vary in the rigor of application according to the severity and urgency of the case. While the curvature is not considered as a disease, but as a deformity, the corrective measures for straightening the spine consist of, first, a constantly applied stretching force, and second, an intermittent application of such force. As the latter is to be used with greater strength than the former, it may be employed as a daily exercise for a short period, and the former may be employed constantly or not, according to the amount of correction which is attempted. The simplest method of the application of a constant force is that recommended by the early practitioners, when a child was strapped to a board and made to sit or lie straight. This, though practical, lacked precision in its application to the portions of the spine to be straightened, but the same principles may be employed with greater directness, both in the vertical and horizontal position; the value of the latter position being that it is less fatiguing and can be applied with the most thorough removal of the weight of the head and upper portions of the trunk, which act as a force to determine the deformity.

It is necessary that the stretching exercises employed be applied with precision and in such a manner that they will stretch the curves and distorted ribs and not the other portions of the spine. If they are applied with care and skill, satisfactory results can be obtained in suitable cases. When, however, any alteration in the shape of the bones has taken place, the use of a stronger correcting force is necessary and should be applied as constantly as is practicable. For this purpose nothing is as efficient as the fixed plaster jacket, applied with the patient in a corrected position, or in a position as nearly corrected as is possible for the patient to endure. The feasibility of the thorough application of this method has been demonstrated in a number of cases. Surgeons, however, vary in regard to the manner of application; whether the patient should be in a recumbent position, whether suspension should be used, what form of correcting apparatus should be employed, are matters which have not yet been thoroughly decided, surgeons varying in the use of different apparatus.

The work at the Children's Hospital, in the past year, ably conducted by Drs. Lovett and Brackett, has illustrated the efficiency of the methods of treatment for this deformity and their application.

A report of their work is presented in an accompanying paper and needs no comment. A successful system of treatment possible in an institution is described. The general practitioner, while accepting the principles of treatment, will need for his own practice the simplest of arrangements.

An appliance for the application of plaster jackets in lateral curvature, which has certain advantages in portability, has been used by the

* Read before the Massachusetts Medical Society, June 7, 1904.

writer. It is eminently one which can be employed by the practitioner and can be readily made and is easily transferred. The design of this apparatus is better shown in the accompanying illustrations than by any description. It is necessary that judgment should be used in the use of corrective force, and a certain amount of skill is required in order that jackets put on will be borne by the patients. It is, of course, undesirable that the first jacket should be applied with a distressing amount of force. Windows can be cut in the plaster, allowing respiration in the portions of the spine which do not need pressure, but in any event the application of a plaster jacket, if any corrective force is used, should be only employed when it is possible to watch the patient for twenty-four hours after the application. In most jackets it is necessary that the bandage should be applied above the shoulders. It is rarely necessary to include the head, though in the most severe upper curves this would undoubtedly be advisable. Repeated applications of the jacket are necessary if much correction is expected, jackets being worn a longer or shorter time according to the amount of force which has been used in the application. A surprising amount of benefit can be obtained by this method, if persisted in for a sufficient length of time, and in young cases a complete correction is possible. The greater the amount of structural change and the older the patient, the less the amount of practical correction which can be expected.

It is manifestly impracticable to keep a patient in a fixed, immovable, plaster jacket during the whole growing period; although this would be desirable for the purpose of shaping the growth of the distorted bones; yet it would be decidedly disadvantageous for muscular development and for the general activity of the patient. It is for this reason that fixed plaster jackets should not constitute a method of treatment any longer than is absolutely necessary. They should be followed as soon as possible by removable corsets and by the use of gymnastics. Removable jackets can be made either of plaster, leather, celluloid, or of cloth reinforced by properly applied steel bands. These removable corsets should be regarded as applicable when the danger of increasing growth has passed, or when the greatest amount of correction has been obtained.

That form of removable plaster jacket which is most within the reach of the general practitioner can readily be made if a plaster jacket is removed from the patient and a cast is poured into the jacket, thus making a mound; around this a plaster jacket may be applied, reinforced by bandages which are rolled in a mixture of dextrine and plaster of Paris. A jacket made in this way requires a longer time to harden than the ordinary bandage, but is somewhat more elastic and durable. If split and arranged with lacing it will serve as an adequate jacket to a faulty position.

As the treatment of lateral curvature requires painstaking attention intelligently employed in the direction of gymnastics, in the application of correcting force, the aid of the specialist is usually of advantage; but as the affection is one to be considered during the growing years especially, careful oversight is needed for several years. This is particularly the province of the family physician, and it is essential that the best methods of treatment be brought to his attention.

DISCUSSION.

DR. E. G. BRACKETT of Boston: As it has been very clearly presented in the preceding paper, very marked advance has been made in the treatment of lateral curvature during recent years, and the practical application of certain definite principles is now pretty clearly understood; and so far as it concerns private patients it has become one of the satisfactory conditions to treat. There is a class of cases, however, with which it is a difficult problem to deal, for the reason that it is impossible to give the individual care and attention that one can give to private patients, and which is necessary for the successful treatment. I refer to the class of hospital cases, which necessarily must make up a large bulk of the cases which need treatment. The treatment must be frequently given, and must be carried over a long period of time, frequently over the years of the child's growth. It may be of interest to some to know in what way and in what measure this problem has been met in the Children's Hospital. Prior to 1890 no attempt had been made to treat separately cases of lateral curvature from other orthopedic cases presenting themselves in the Out-Patient Department. They were treated when they appeared, but with the facilities at our disposal satisfactory treatment, gymnastic or otherwise, could not be carried out. The number of cases was on the whole small. From 1886 to 1890 only 87 applied for treatment during the regular Out-Patient hours.

In 1890 an attempt was made to treat cases more systematically, by setting apart a room in the Out-Patient Department for the purpose, and by having the children come on Monday and Wednesday afternoons, and later on Saturday mornings as well. The assistance of graduates of some of the normal schools of gymnastics was secured, and exercises were given regularly by them, under supervision. Under this plan a large number of children came for treatment, and were regular in attendance. Two or three years later the cases of lateral curvature coming for treatment on Tuesday and Saturday afternoons were separated from the other cases, and were treated at first by a graduate of one of the normal schools, and later another graduate had the assistance of pupils from one of the normal schools. Later a large room was secured in the Out-Patient building, apparatus was added, and the two clinics were run separately with different sets of assistants, each under the supervision of one of the assistant surgeons.

Under this method the number of cases presenting themselves for treatment constantly increased until in 1900 over a hundred cases were on the regular attendance list.

In the spring of 1903 both clinics were united, and the present system of organization adopted with the view of obtaining a uniform system of records and treatments for all cases, and securing more frequent attendance of patients, and Monday, Tuesday and Wednesday afternoons and Saturday mornings were set aside for their regular periods of treatment. The clinic is held in the former lecture room of the Out-Patient Department, which is fitted up with a few pieces of apparatus for restoring flexibility, and although entirely inadequate to the number of cases coming is better than any combination that we have had in the past. The clinic

FIG. 1. — Resistant Lateral Curvature in a girl of fourteen before treatment by corrective plaster jackets.

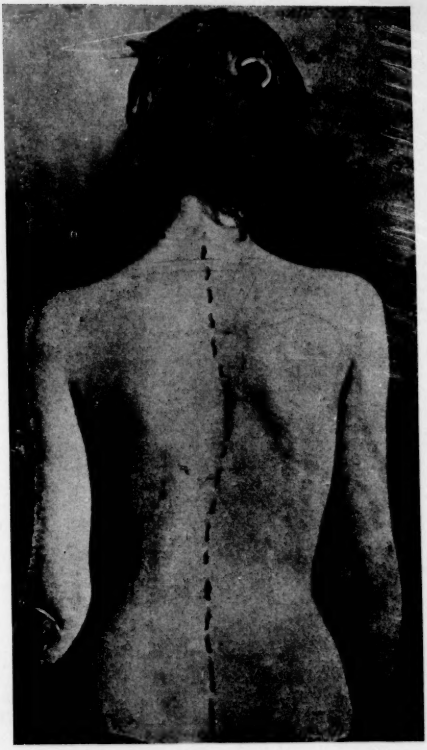


FIG. 2. — The same patient three months later after two corrective jackets.

FIG. 3. Portable arrangement for the application of corrective plaster of paris jackets.

is in charge of the two assistant surgeons of the hospital, who serve six months at a time alternately. There are two medical assistants, graduates in medicine, who assist for terms of three months each, in the instruction and care of cases and fitting of apparatus. The gymnastic work of the clinic is in charge of a graduate of experience of one of the normal schools of gymnastics, and who works under the direction of the assistant surgeon on duty. She has eight or ten assistants, women graduates of normal schools or advanced pupils in these schools, and who serve for terms of three months each and give the exercises to the children. They receive instruction from the assistant surgeons in the form of informal talks, and have instruction in measuring of cases, in keeping of records, and assist in the application of plaster jackets forcibly applied, and have an opportunity to learn the principles of photographing cases. Among the graduates who have taken the course since the first of June, 1903, are three assistant instructors of physical training in the Boston public schools and two directors of physical training in large women's colleges. The instruction given is of the simplest kind, and is intended to cover the practical aspect of lateral curvature.

The supply of patients has been far beyond our capacity, and occasionally it has been necessary to stop the admission of cases, and there are now in the more or less active treatment about one hundred cases. Each child when it first comes has its history taken, a careful physical examination, and a description of the curve is made by one of the assistant surgeons and is recorded on a card. General measurements with the antero-posterior tracing are made and recorded, and to complete the record the patient is photographed. These photographs are taken under constant conditions with the patient at a fixed distance from the camera, with the feet in the same position on an elevated pedestal, by which method one is able to have a fixed size for all photographs and relative measures taken by scale. All cases then receive a prescription for exercises, and are placed in charge of the gymnastic superintendent of the clinic. The treatment is advised according to the grade of the curve. The following grades are recognized:

(1) Slight postural cases. If the case is one of slight postural curve, the child is placed in a class coming from one to four times a week, as may be necessary. It is given exercises for half an hour daily at a fixed time. A number of types of class work have been tried and compared. It is necessary to have two separate classes exercise at different hours to accommodate the number requiring this kind of work. This class work is, of course, inferior to individual work, but there has been the alternative of either refusing these cases or treating them in this way, and as each child is given these exercises to do at home, the result of class work has been on the whole satisfactory, and many cases have shown a marked improvement. Gymnastic work at home is to be considered an essential part of the treatment. A strict discipline has to be maintained in matters of appointments. Any child missing two, without giving notice, is dropped temporarily, losing its place, and is only reinstated after an interview with the parents. This is found to have a most stimulating effect upon attendance at class. In this class of cases two means of treatment are clearly formulated: (*a*) restoration of flexibility, (*b*) sense of corrected position by muscular effort. For the restoring of flexibility, the ordinary methods of hanging by arms, head suspension, bending, etc., are used. There are two pieces of apparatus for applying pressure locally while patient is held extended, and two pieces of apparatus for applying side pressure while the patient lies prone. If patient can hold correct position from one treatment to another, apparatus is not used. If patient shows a tendency to slip back between the treatments, and at the beginning of each treatment is in a less correct position than at the end, some form of retentive apparatus is used. Patients of this grade do not exercise in class, but receive individual appointments, and have the attention of one teacher for half an hour every day from one to four times a week. Home work also forms a part of this treatment with patients whose parents are intelligent enough to carry it out.

(2) The severest cases, which are treated by forcible correction and plaster jackets, are treated by use of apparatus for exerting pressure to correct both the side deviation and rotation. Jackets are applied in succession until as much correction as seems possible has been gained. The last jacket applied is then used as a torso, which is molded to exert pressure where it is wanted, and a permanent jacket of leather made to be worn continuously by the patient, removing it only for exercising. Apart from this point, the treatment does not differ from that pursued in the medium grade of severity, namely, to increase flexibility in desired direction, and exercises to improve muscular condition.

Although in so long-continued an affection as lateral curvature it is difficult to secure the attendance of the patients for a sufficient time and the individual cooperation of the parents, on the whole the results have been satisfactory. In the cases of milder grade improvement has been the rule, and such cases have been excused from active treatment and placed wholly on home work, reporting occasionally. In cases of the medium grade, marked improvement has been made in some; others remained where they were, while others from one reason or another have increased. In the severest condition the results of the forcibly corrected jackets have been satisfactory, and much improvement secured in them. The organization of the clinic is given not because it is by any means what is desired, but because it represents a working scheme which gives fairly satisfactory results in the large number of cases treated in insufficient quarters.

FRACTURES OF THE RADIUS IN STARTING AUTOMOBILES.

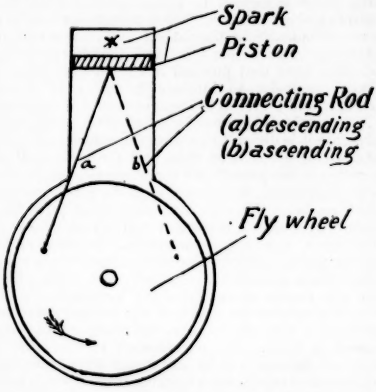
BY F. B. LUND, M.D., BOSTON.

"It hardly seems possible," to quote Lucas Championniere in a recent article on this subject,[1] "that the subject of fracture of the radius can offer us any new points for study," nevertheless there has arisen, so to speak, during recent years a fracture of the radius, which with the popularity of the automobile has become not infrequent, having certain peculiarities to distinguish it from ordinary fractures of the radius, and occurring under circumstances which permit us to form an exact idea of its mechanism.

The gasoline automobile, as is well known, depends for its power upon the explosion of a mixture of air and gasoline by an electric spark, and the motor is started by turning a handle from left to right. This handle turns, directly or by means of a chain, the fly wheel of the engine. As the handle is turned, the piston descends and sucks a charge of the explosive mixture into the cylinder; then, as the wheel continues to turn, the piston ascends and compresses the mixture in

[1] Fractures du radius dues au retour de la manivelle d'automobile. Bull. de l'Academie de Médecine, 15 mars, 1904.

the cylinder until just after the crank shaft which connects the piston with the fly wheel has passed the center, an electric spark passes between two points in the explosive chamber, explodes the mixture, drives the piston and crank shaft downward, and the engine is started. As the engine turns, the handle is automatically disengaged by a ratchet. If, however, the spark explodes prematurely, the fly wheel carrying with it the starting handle is driven with the full power of the engine instantaneously and violently in the opposite direction, twisting the hand backward with such force as to tear off the lower end of the radius. The mechanism may be illustrated by the accompanying diagram.



As the engine is put in motion by the handle, the piston has ascended to the highest point and is on the way down when the explosion takes place, *i. e.*, is in the position illustrated by the continuous line in the diagram. The explosion drives the wheel in the direction the handle is turning, *i. e.*, in that of the hands of a watch, the handle disengages itself, and the engine continues to run by virtue of the continuance of the series of compressions and explosions. But if the explosion takes place before the connecting rod has passed the vertical line, while the piston is moving up, when it is, for instance, in the position marked in the dotted line in the diagram, then the wheel and handle are driven violently in the opposite direction to which they are turning, carrying the incautious hand of the operator with it, with the not infrequent result of a fracture of the radius. If the handle be lifted rather than pushed past the compression the accident cannot take place. If the spark lever be set in the position called retarded, in which it should always be placed for starting the motor, *i. e.*, so that it explodes only after the connecting rod has passed the center, the accident cannot take place. Certain of the machines are so arranged that the plug which is put in position to complete the electric circuit cannot be inserted with the spark in the advanced position, which is a very good thing, but does not always prevent a careless operator from advancing the spark after one or two ineffectual attempts to start the motor with the spark retarded. Such an accident need never happen to an operator who is careful, never forgets what he is doing, and does not lose patience. It is Mayor McClellan of New York, I believe, who has characterized the automobile as an admirable developer of the virtue of patience. This it certainly is. In the hands of a man who treats it with ordinary care and intelligence, and when it gets out of kilter goes at it carefully and thoroughly, without haste, using the powers of eliminative diagnosis which study and experience should have given him, the automobile can almost always be made to start and keep going. It may be both a means of very great enjoyment and a help to the physician in his work. Carelessness in operating it brings great danger to others; carelessness in starting it may be dangerous to the operator himself. The sudden popularity of the automobile has brought great pressure to bear upon the shops where the machines are cared for and repaired, and after many hours of hard work under pressure, hurried perhaps by the owner who will not be kept waiting, mechanics become tired and carelessly attempt to start their machine with the spark advanced. Operators on the road also lose patience with their machines sometimes when, far from home on a dark and rainy night, they refuse to go. Under these circumstances patience and tact are more necessary than ever, and the reward of carelessness may be a fractured forearm. It is as a warning against this danger that these few remarks are introduced.

Now as to the nature of the fracture. As has been stated, it is due to a violent twisting backward of the hand at the wrist, without the impacting force which is present in the ordinary Colles' fracture. In this latter, which is due to falls upon the hand, the hand is twisted backward, and at the same time the weight of the body, carried through the forearm, splinters and impacts the fragments. The commonest seat of the ordinary Colles' fracture is about three quarters of an inch above the lower end of the radius, there is more or less splintering of the bones, and the line of fracture is an irregular one.

In the fracture from the "back kick" of the starting handle there is no impaction or splintering. The hand is violently dislocated backward, and the ligaments at the wrist simply tear off the articular surface close to the lower end of the bone, commonly just above the base of the styloid process. The line of fracture is clean and transverse, there is no impaction or splintering, and the deformity, if present, is easily reduced.

Union ordinarily takes place rapidly, the treatment is simple, and the absence of impaction or actual destruction of the posterior portions of the fragments, which is the *bete noire* in the treatment of the ordinary Colles' fracture, enables union to take place without deformity, and ordinarily without any stiffness of the wrist or fingers.

FIG. 1.

FIG. 1.

FIG. 2.

FIG. 2.

FIG. 3.

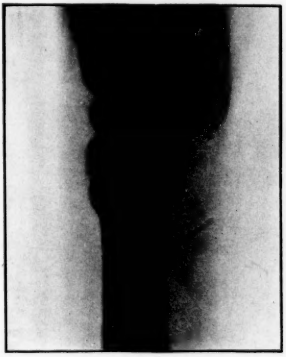


FIG. 3.

FIG. 4.

FIG. 4.

In young subjects (*vide* Case III of this paper) a separation of the epiphysis takes place instead of a fracture.

Lucas Championniere[2] calls attention to the comparative simplicity of this fracture by avulsion alone, as compared with the ordinary fracture in which avulsion is accompanied or succeeded by impaction. In speaking of the simplicity of the treatment he states that he has had marvelous (*merveilleuse*) success by immediate replacement followed by early mobilization and massage, without any retaining apparatus. The writer has not been willing in these cases to dispense with the comfort and safety obtained by immobilizing the wrist by a splint, but has, as is the best practice, mobilized the fingers from the first. Passive and active motion of the wrist has been practiced at every removal of the splint. The results have been most satisfactory, as the patients have hardly had any limitation of motion after the first three weeks.

Lucas Championniere speaks of the fracture as a " professional fracture " in the case of chauffeurs, a simple matter, rather to be expected and not much to be dreaded, as is the case with fracture of the clavicle in steeple-chase riders and bicyclists. It seems to the writer that while in horse racing and steeple-chase riding fractures of the clavicle are apt to occur, the conditions are beyond the control of the jockey, and his own carelessness is not usually to blame. In the fractures incurred in starting an automobile, however, the conditions are under the operator's control, and this accident ought never to occur except as a result of heedlessness. High-powered machines with heavy starting handles are naturally the more dangerous, but with care and patience one may lift rather than push the handle past the compression. Some of the more accurately adjusted machines may be started by completing the electrical connection after sucking a charge into the cylinder by the handle. In this method of starting, the danger is, of course, zero, and there is reason to believe that the automobile of the future will always be started in this manner. Suffice it for the present that there is always a safe way of starting if one takes pains to follow it.

Three cases of fracture of the radius in starting automobiles have come under the writer's care and were studied by radiography, with results of considerable interest to him. A brief account of the cases will perhaps bring out some of the points alluded to in the preceding text.

Case I. An experienced operator and skilled mechanic, aged thirty years, was starting a fifteen-horsepower, three-cylinder automobile. Several people were standing about watching him. He retarded the spark by pressing down a button preparatory to turning the handle. Then he stepped away for a moment to answer a question, and while he was so occupied a bystander raised the button and advanced the spark. He turned the handle from left to right, using his right hand, and bore down upon it. A " back kick " twisted his hand backward so that the deformity was excessive, the anterior lower edge of the upper fragment almost coming through the skin. The writer was called at once and saw him within a few minutes, finding the condition stated above. The deformity was reduced at once and splints roughly applied. He was then taken to a private hospital, etherized, and the fracture dressed with anterior and posterior splints. The radiographs shown in Fig. I were taken the following day. As will be readily seen, they showed that the styloid process and the articular surface of the radius had been avulsed, and that there was a vertical tear through the middle of the articular surface. Reduction had been satisfactory. The posterior splint was removed in ten days, the anterior in two and one-half weeks. Active motion of the fingers every day from the first, and every two days on removal of the splints, active motion of the wrist and fingers. In three weeks he could do light work, and in four weeks by wearing a leather wrist support could operate one of the machines having an easy control.

Case II. A gentleman, aged forty-eight, received a " back kick " from the starting handle of a seven-horsepower single cylinder motor. The handle turned with difficulty and he had taken hold with both hands. As he bent over the handle, pushing downward, the handle jumped backward, twisting his left wrist and fracturing the radius. The spark was undoubtedly advanced. The writer saw him within twenty minutes of the accident. There was no deformity or swelling, but he was prostrated by the pain and shock, and a hard and very tender bony ridge could be felt over the back of the radius about half an inch above the tip of the radial styloid. Splints were applied, he was taken at once to a private hospital and etherized. Mobility and crepitus were felt at the point mentioned, and the hand dressed as in Case I. The next day the plates shown in Fig. II were taken, showing a clean transverse fracture at a level just above that shown in Case I. The treatment was the same in every particular, except that massage was added to active motion after two weeks, as muscular atrophy from confinement was rather evident. No stiffness of the wrist or fingers resulted, and in two and one-half weeks the patient had considerable use of the hand.

Case III. A mechanic, sixteen years of age, at work in a garage at 6 P.M. after a hard day's work, trying to start a refractory machine for which the owner was waiting. The engine was a single cylinder of six-horsepower. While he turned the handle a fellow workman was manipulating the spark lever in the attempt to explode the spark at the right instant for starting. As might have been expected, a " back kick " resulted, and the pain and disability suggested the usual injury. The writer saw him about fifteen minutes after the accident, and found slight " silver fork " deformity, apparently in part due to swelling about the tendons on the front of the wrist. He was taken to a private hospital, etherized and abnormal mobility of a very small fragment of the lower end of the radius, but no crepitus, made out. The wrist was dressed as in the preceding cases, and the following day the radiographs shown in Fig. 3 were taken. The absence of crepitus was readily explained by the fact that no fracture, but a separation of the lower epiphysis of the radius, had resulted. This epiphysis, the line of which is shown in the reproduction, does not unite with the shaft till about the twentieth year. It is interesting to note that the line of the epiphysis is exactly at the level of the fracture in Case II. The radiograph in Case III also shows a vertical fracture through the epiphyseal cartilage of the ulna.

Fig. IV is the radiograph of a rather typical Colles' fracture in a patient who fell from a horse, showing irregular line of fracture and impaction. Note the somewhat higher level of the fracture.

[2] *Loc. cit.*

THREE CASES OF THE ASSOCIATION NEUROSIS WITH REMARKS ON ITS GENESIS.

BY JOHN E. DONLEY, M.D., PROVIDENCE.

MY reasons for reporting the cases I am about to record are twofold: First, they are interesting examples of the association neurosis to which attention has been directed in recent years, particularly by Dr. Morton Prince; and second, they demonstrate the results that may be expected from a rational therapeusis.

CASE I. Mr. M. gave the history of his complaint as follows: He had always enjoyed excellent health until nine months ago, having followed his occupation of machinist for years without interruption. At that time he suffered from an attack of herpes zoster which, he says, was very painful and which lasted about two weeks when the eruption gradually disappeared. The vesicles were situated upon the left side of the thorax, approximately within the skin area of the fifth thoracic segment. Although all other evidences of the trouble had vanished in due time the pain continued with considerable severity. It was situated along the vertebral column between the scapulæ, and the peculiar thing about it was that it always began about five o'clock in the morning when the patient was still in bed. It had no relation to muscular activity; in fact, if he got up and moved about for ten or fifteen minutes the pain would disappear, and when he arose before five o'clock it would not occur at all.

He was very much worried and disheartened about his condition, and said he thought he would never recover since he had tried all sorts of remedies without success. There were absolutely no objective signs of disease. The man was strong and muscular, the only abnormal characters about him being his pain and the consequent depressed mental state.

Believing that his condition was purely functional and his pain the result of a morbid association, I explained to him carefully the nature of his trouble and gave him a very positive opinion that it could be relieved. For its suggestive effect faradism was applied to the spine and he was given a bromide mixture with the assurance that it would afford him certain relief. He was directed not to get up until six o'clock the following morning, and upon reporting that afternoon he said he was much gratified since the pain although present was not so severe. The same treatment was continued for ten days, and at the end of that time his pain had disappeared completely.

CASE II. Miss G. is a young woman, twenty-three years old, of a very excitable and high-strung temperament. Although nervously unstable she enjoyed fairly good health until four years ago, when she suffered from an attack of the grippe, and from that time her nervous symptoms have been constantly in the foreground. They consist of insomnia, headache, fatigue, asthenopia, and loss of appetite. Her chief complaint, however, and that for which she sought advice, was severe nausea when she rode upon the street cars. She could travel upon a train without discomfort. Her first attack of nausea occurred two years ago when she was returning from a shore resort after having eaten a particularly indigestible meal. Since then she has been sick every time she got upon a car and because of her apprehension she had stopped riding. She says she has taken "barrels" of medicine for her stomach, but as soon as she boards a car her fear that she will be sick always occasions distressing nausea.

Evidently this was an instance of nausea arising from auto-suggestion, a very good example of the phobo-neurosis. Her fear was in effect equivalent to the suggestion, "If I ride upon the cars I shall be sick," and, therefore, upon her fulfilling the one condition, the other followed as the second element of the association. This was explained to her. She was told that her trouble was purely the result of an abnormal habit, whereby she brought on her sickness by unconscious auto-suggestion. Being very intelligent the explanation appealed to her and she entered heartily into the attempt to overcome the habit. A piece of paper was given her upon which was written the following:

"My symptoms are merely the result of a morbid association founded upon a previous illness and are simply a habit. The original illness having disappeared the association will be broken up, and my sickness will not recur."

She was to learn this by heart, to repeat it as often as possible during the day and after three days to get upon a car and ride, repeating it to herself several times during the journey. Upon her way home she came to my office and told me she had ridden five miles into the country and back again without being ill, and she further declared her intention of riding as much as she pleased since she saw how "foolish it was to be afraid of being sick."

CASE III. Mr. A., a man aged thirty years. Until one year ago he had always been a free drinker, so much so that his bouts with Bacchus had brought on an attack of alcoholism verging upon delirium tremens. He stopped drinking abruptly, upon the advice of his physician, who told him that to drink again would be fatal. This advice of the doctor was the nucleus about which he constructed a whole host of morbid fears. He was certain he had heart disease and was treated accordingly. Then he fancied his kidneys were weak, which belief he based upon the color of his urine. About the same time he became afraid to mingle in crowds and wished to be left alone. Finally he developed trouble with his stomach, and for this he came under treatment. So far as diet was concerned he had no difficulty, but if he attempted to drink a glass of beer he would feel weak and nauseated, after he had taken a few mouthfuls. The cause of this weakness and nausea, as he himself stated, was the fear that the drink would make him ill for he had been led to believe so by his family physician. Examination disclosed no physical disease of any sort, but the man was in a very sorry mental state.

It was exceedingly difficult to convince this patient that he would not develop some incurable malady of the stomach if he took an occasional glass of beer. But after three or four visits he agreed to disregard his own opinion in the matter and to do as I directed him, with the result that he can now drink several glasses of beer without inconvenience, since ultimately he came to realize the psychical origin of his trouble.

The cases of which the histories have been

briefly recorded above, represent very fair examples of the association or habit neurosis, which it would seem is not altogether uncommon when we stop to analyze carefully the origin, course and outcome of many of the symptoms presented by a series of patients.

The importance of recognizing the fundamental psychic basis in such cases is proclaimed by the fact that all three of these patients had been under constant medical care and had taken a variety of medicines without producing any noteworthy effect upon their symptoms. When, however, they were made to realize that their complaints were largely, if not wholly, mental and their attention was directed to the overcoming of the pernicious habit their improvement was rapid and altogether satisfactory.

Association or habit neuroses constitute a large class of purely functional nervous affections, in which the disagreeable features result from an atypical or not normal association of elements which in themselves are in no sense pathological. The result is a neurosis which is functional in nature, and which may be defined in the words of Dr. Prince as a disease "in which the anatomical processes are similar in kind to those which occur in health, which makes use of the natural working or functioning of the system, and is the expression of normal physiological laws, but differs from the norm in that the functioning is an undesirable or a disagreeable response to the environment (or internal stimuli) instead of a desirable or agreeable one." We may express the same idea in other words by saying that a habit neurosis is a functional perversion consisting in an acquired aptitude for a particular mode of action in which normal physiological responses are combined in disagreeable associations.

That the foregoing definitions may be more clearly understood it is necessary to consider somewhat more in detail the propositions which they contain: first, the nature of a functional disease; second, the general concept and formation of habits; third, the genesis of those particular perversions of habit which we call neuroses.

As to the first question we cannot do better than follow in substance the very lucid explanation of Dr. Prince. Although it is often said that there is no such thing as a functional disease, and that, therefore, all diseases are organic, such an assumption is based upon a complete misconception of the latter term. It is quite true that, as modern physiology teaches, the functioning of every organ is accompanied by certain molecular anabolic and katabolic changes, and indeed it is inconceivable that it should be otherwise. Every process of thought, of digestion and of muscular action implies a concomitant or antecedent chemical change in the corresponding brain, stomach or muscle. So from this point of view no vital phenomenon, whether it be of health or of disease, can occur without a basis of organic change, but this use of the term is altogether different from its application to organic disease. When we speak of organic changes we mean physical changes different *in kind* from those which subserve the organism in health. The distinction concerns the kind of change and is plainly evident when we think of the gross anatomical alterations that occur in inflammations, abscess, tabes dorsalis, progressive muscular atrophy and the other degenerative affections of the nervous system. On the other hand, it is highly improbable that in the neuroses and psychoses such as neurasthenia, hysteria and insanity, the anatomical changes are different from those which occur in health. Therefore, as Dr. Prince rightly insists, for a disease to be functional it must be a "consequence or concomitant of the same kind of physical changes which subserve the functioning of an organ in health, and be originated as a response to stimuli by the same laws which govern the functioning of the organ in health." The only difference consists, first, in the pleasurable or painful coloring of the response, and, secondly, in the type of the association.

To discuss adequately the second problem concerning the nature and formation of habits in general would be to enter into the psychology and education not only of the individual, but of the race. We can touch upon merely the broader outlines. Habit[1] as Aristotle taught, is formed gradually and is the result of a movement which is not natural or innate, but which is frequently repeated. Herein it is to be distinguished from instinct, which is both natural and innate. Habit is always an acquired character, being in contradistinction to instinct, highly individualized and having in every instance its origin in the repetition of an act. It is like nature.

Just as in nature things follow one another, so it is with acts of the mind and nervous system, and what is frequently repeated becomes a second nature. The plasticity of the nervous system is at the root of habit; and therefore we may understand how habits arise from education, whether it be physiological or pathological, the result of health or of disease. From the physiological side the process consists in the formation of functionally related groups, systems and communities of neurones the permanency of which is in direct proportion to the duration and frequency of their associative activity. Thus originates an automatic mechanism of such a nature that given one element of the association the others follow naturally and without effort. This is the explanation of those actions in which as we say "practice makes perfect;" and as examples we may mention piano-playing, juggling, talking, and writing. Maine de Biran expresses it very clearly as follows: "Every voluntary movement when frequently repeated becomes gradually easier, more rapid and more precise, whilst the effect or impression that results from the movement becomes less in the same ratio as that of the increase in the rapidity, precision and facility, and in the

[1] Historically it is interesting to note that habit has always been a theme for philosophic speculation. Plato condemns it as a thing of mere routine and so lacking in virtue. Aristotle was the first to propound a psychological theory of habit. To Epicurus we owe the first mechanical or physiological theory of habit, which was elaborated by Descartes and Malebranche, and in the hands of David Hume became the central principle of the Associationist philosophy, while later it formed an important element in the theory of evolution.

final stage of this increase the movement becomes *entirely insensible and affects consciousness only through the results in which it co-operates or the impressions with which it is associated.*" In other words the habit becomes submerged in the vast realm of the subconsciousness, where upon appropriate stimulation it manifests itself in automatic activity.

If, furthermore, we inquire why certain of the reactions to external or internal stimuli which go to form habits, are pleasurable and why certain others are painful, the answer would seem to be that such reactions are teleological.

Stimuli which produce in consciousness disagreeable accompaniments are usually harmful to the organism and therefore to be avoided, whereas stimuli which produce in consciousness pleasurable accompaniments are usually beneficial and therefore to be augmented. Thus we avoid pain, disagreeable tastes and smells, and cultivate stimuli having the opposite characters, although the former no less than the latter are normal physiological reactions to stimulation. They are, therefore, and this is important, *per se*, not pathological at all and are so only in the sense that they produce unpleasant effects or are united in disagreeable or atypical combinations, which we find to be the case in the habit neuroses.

Turning now to those affections which we classify as association or habit neuroses, and applying the principles which have been explained above, we find upon close analysis that these neuroses are simply perverse habits which have been acquired at some previous time, and which have persisted long after their original exciting cause has ceased. They are associations wherein the nervous system has been educated by one means or another to respond to normal and customary stimuli with disagreeable and unwished for effects which may be sensory or motor or both. Were these effects agreeable we should not call them neuroses.

Therefore we have arising upon a basis of suggestion or disease a habit of response which to the nervous system has become a second nature, and in which it continues so long as the association is not dissolved. The cases herewith reported exemplify this very well. In the first pain, and in the second and third nausea and weakness represented perverse habits of response, and so pure association neuroses.

And that these patients were the subjects of a habit neurosis becomes a matter of demonstration when we consider the success of the therapeutic measures employed in each case.

Clinical Department.

CASES ILLUSTRATIVE OF SYPHILIS OF THE NERVOUS SYSTEM.

BY S. G. WEBBER, M.D., BOSTON.

I HAVE given only abstracts of cases, trying to give a variety such as will illustrate the manifold symptoms as seen in different patients. My purpose is simply to give varied clinical illustrations without touching upon pathology in any way.

Among the symptoms dependent upon cerebral syphilis there are none which belong exclusively to that affection. It is rather by the history of the case, of its early stages and course, and by the grouping of the symptoms that a probable diagnosis can be made. There is often an irregularity in the phenomena which shows that there must be more than one focus of disease; and sometimes the symptoms have a peculiar ephemeral character, with remissions and variations.

HEADACHE.

The most common symptom attending syphilis of the nervous system is headache. This is the earliest in its appearance, preceding other graver symptoms and giving timely warning that subsequent danger may be avoided. Its characteristics are, great severity of the pain, either almost uninterrupted or with remissions, sometimes with intermissions. In many instances the pain is most severe during the latter part of the day, or in the night, though there are frequent exceptions to this rule. Sometimes the pain seems located in a limited region, sometimes it is spread generally over the head. It may be bilateral or confined to one side. The above peculiarities are very similar to those attending headache caused by cerebral tumor; but in syphilitic headache nausea and dizziness are generally absent.

CASE I. The first case is one of headache simply, with no other symptom. Mrs. N., aged fifty-five, had had syphilitic caries of some of the bones of the face about eight years before I saw her. For four weeks she had had pain in her head, chiefly on the right side. There was no disturbance of sensation or motion. She lay much of the time with the clothes drawn over her head. The pain was sometimes occipital, sometimes frontal. Iodide of potassium was given in increasing doses, and after five days she received forty grains three times a day. In about a month she was free from pain.

CASE II. The next case is one of hereditary syphilis. It illustrates the necessity of continuing treatment long enough and the dangers of a return of symptoms with the addition of others more serious. Mr. B., aged twenty-three, had had syphilitic iritis five years before I saw him. His upper incisor teeth were characteristic syphilitic teeth. Three months before I saw him, he had headache; he was also conscious that he was losing strength. He was not dizzy and had no nausea. He walked well with his eyes shut for a short time, then he staggered. A small dose of iodide, five grains, was sufficient to relieve the pain, at least in a measure, but after a month it became worse and the dose was increased to ten grains, three times a day. The pain left and he continued in fair health, attending to duties which required much brain work. Nearly two years later the headache returned; there was a swelling over the left eye; the left arm was at times stiff so it could not be raised to his head; if moved it pained him; at times he was dizzy, had been so for six or eight months. The right pupil was the larger; both reacted poorly to light. Knee jerk was well marked, there was no pain nor

stiffness in the legs. He was again put on iodide of potassium in larger doses, forty grains three times a day, and one-tenth grain of biniodide of mercury was added. The swelling and headache disappeared. He became so deaf he could not attend to his duties. Because of the deafness the iodide of potassium was omitted and the mercury increased; he was put to work on a farm. His hearing improved but the headache returned in about two months. An examination of his eye showed besides the iritis only a choroiditis. The iodide was resumed in doses of thirty-five grains; all the symptoms improved, hearing returned. He has not been seen for some years. This young man was brought to me by his uncle, who insisted that he should not be informed as to the nature of his affection. In this I believe the uncle was wrong.

Case III. This case is one of headache with only such other symptoms as often attend such pain. The dose needed for relief was the largest I have known to be required, three hundred and eighty grains a day. My advice to the attending physician was to increase the dose rather rapidly until some effect was obtained, and I have no doubt the drug was given judiciously.

Mr. —— had been ailing six months with headache. He had had primary sore two years previously. In August the pain became continuous, no day being free. In December it was very bad; he was so dizzy he could not trust himself to walk, staggered, less strong than usual, eyes ached. There were two exacerbations of pain in the day, one at 1 P.M., the other in the night. The pain came and went slowly. He was put on iodide of potassium and mercury. His physician wrote that the iodide had been increased in about two weeks to three hundred and eighty grains a day before he had much relief. He also took an eighth of a grain of bichloride of mercury three times a day. He improved wonderfully; the medicine was given in lessened quantity for some time. He got virtually well.

Case IV. This patient had headache early, before the secondary skin eruption. Miss K., aged twenty-three, had headache thirteen days before I saw her, which increased in severity, the pain lancinating, worse on the right, scalp very tender, tender also over the radial and median nerves. The pupils were of medium size, did not respond to light, did to accommodation. The pain was so severe it was necessary to give morphia at night. Under iodide of potassium, increased to fifty grains three times a day, the headache ceased in less than a month. Later, an eruption appeared on the face and body quite distinct from the iodide eruption, resembling syphilitic. There may be a suspicion that this was a beginning tabes. That is possible. I have no history of the patient's subsequent life.

I have seen a case of extremely severe headache, incapacitating for business, beginning before the eruption, continuing during the presence of the latter, and not yielding to treatment until the skin affection had nearly disappeared.

CONVULSIONS.

Syphilitic infection may be the cause of convulsions closely resembling epilepsy. Such patients may have the *petit mal* as well as the *grand mal*. It is at times very difficult to determine the syphilitic origin of the attacks. If they begin after early adult years, and especially if headache has preceded, for any length of time, the convulsions, syphilis should be suspected. Such a history led me to recognize the cause in a middle-aged woman, who had been deceived fifteen years previously and seduced under false promises of marriage.

Case V. Miss D. had had for four or five years headache once in one or two weeks. She was seen in March; early in January she had had neuralgia through the right eye and temple after exposure to a draught of air. About a week later she had lumps on her head, which were tender, also a thumping in her head; the right lid drooped and was swollen, the eye was sensitive to light. The lumps remained about a week or more, were about as large as a quarter. Two weeks before I saw her she had a convulsion. While going down stairs she became dizzy, then lay down, could not collect her thoughts, jumped up to put water on her head, put her hands on her head, said, "Oh, my head!" and then dropped. Her eyes stuck out, she frothed at the mouth, worked hard, teeth were clenched, face was dark. The attack lasted about fifteen minutes. When she came to she felt tired, no headache. She received twenty then sixty grains of iodide of potassium three times a day, and a sixth of a grain of biniodide of mercury. Four days later the eyes were nearly natural, the headache soon left, there was no dizziness. She did well for a year; then her sister was sick and she was much taxed with care of her. The headache returned for a while, but yielded to renewed treatment.

Case VI. Partial spasms or monospasms, which indicate irritation of limited areas of the cortex, are among the most interesting convulsive phenomena in cases of syphilis. Partial or total paralysis sometimes follows these attacks. This paralysis may be temporary or permanent. The following case is rather remarkable in that the patient recovered notwithstanding the severity and long continuance of the convulsions. His history was not clear; it seemed probable that he had had syphilis. He had had headaches for some time, then one or two convulsive attacks at long intervals; the first, six years before I saw him, in which the head and eyes were said to have turned to the right. A short time before I saw him the spasms had become frequent. I found him unconscious, having convulsions every three minutes. They began on the left side of the face, the eyelids and mouth moving rapidly, then the head and eyes were drawn to the left; the arms were then seized with a tremor; the legs were very slightly, if at all, affected. The whole attack was of about a minute's duration. Between the attacks, as near as could be judged, the left side was paralyzed, the right not. These convulsions continued several days, they then ceased; he regained consciousness. I have no notes of the amount of medicine given, as he was seen only once in consultation. I have not been able to learn the details of his subsequent history as he moved to another town, but learned that he later died from the effects of the syphilitic poison.

Case VII. In this case maniacal excitement was one of the symptoms following convulsions. Mr. R. had had some difficulty in speaking, also severe headache. One night he had a convulsion, his head and eyes were turned strongly to the right, he frothed at the mouth, jaws were firmly closed, the right side of his face was violently convulsed, the right hand and arm described an indefinite rotatory motion, the right leg was not moved. He was unconscious during the half hour the attack lasted. When I saw him the next morning the pupils were small, responded to light, the tongue was protruded slightly to the right, there was no other paralysis. Reflexes were normal. He was unable to say a word. During the day he had

two more convulsions of shorter duration. He became delirious, and a state of maniacal excitement continued for two or three days. He slowly regained the power to talk and finally seemed to be entirely recovered. He received the iodide in doses of fifty grains and biniodide of mercury a sixth of a grain.

PARALYSIS.

Hemiplegia, occurring suddenly as from cerebral hemorrhage, is not common as the result of syphilis. A gradually increasing paralysis of one side is more common. A unilateral weakness of one or both extremities, which continues a short time, disappears, then recurs again and again, especially if accompanied with attacks of numbness in the same parts and preceded by headache, is much more significant of a syphilitic origin. It is not uncommon to have a slight motor weakness of the limbs in cases of paralysis of the cranial nerves.

The ocular nerves are more frequently paralyzed than other cranial nerves; in many cases the paralysis is not complete, only a few of the fibers losing power, or there is only a weakness of the muscles supplied by one nerve. The facial, hypoglossal and nerves of special sense are much less frequently affected. Generally headache precedes or accompanies paralysis of cranial nerves; sometimes instead of headache there may be obstinate trifacial neuralgia.

Aphasia may be present with spasms or paralysis, or it may exist alone. After other symptoms have subsided the difficulty of speech may remain.

CASE VIII. Mr. Y. was seen in October. The previous May he had had a chancre; early in July a mild secondary eruption and slight affection of the mucous membrance of the mouth and throat. These symptoms yielded readily to a mild mercurial course. Later he had headache. The day before I saw him, he had a decided partial right hemiplegia with impairment of speech. He could scarcely move the right arm. When I saw him the next day the right side of his face was partially paralyzed; there was tremor of the right hand. Motion was not impaired in arm or leg and the next day he was all right. A few days later the right side suddenly lost power for a few hours; he found it difficult to walk. He recovered entirely, his headache left. The iodide caused a slight eruption which made him very nervous. In consequence of his feeling thus the iodide was unwisely diminished too soon. In less than three weeks the headache returned and there was numbness in his right little finger. The iodide was increased to fifty-grain doses, and a seventh of a grain of biniodide was given with it, and soon all symptoms disappeared.

CASE IX. Some sixteen years before I saw Mr. H. he had had syphilis and secondary symptoms later. About thirteen months before I saw him he had lost power to talk or write for about fifteen minutes, without paralysis or loss of consciousness. A slight numbness in the index and middle fingers of the left hand remained, no weakness of the right hand. Eleven months later he had headache and again lost power to articulate; he walked less steadily than usual, there was not loss of speech nor of power to write, only difficulty in articulating. He gradually regained his speech, though when he tried to talk the words ran together and he was slow in understanding questions and in answering. In writing he wrote all the letters of a word, but placed them in the wrong order. When seen his speech was again bad, he spoke slowly, deliberately, with some hesitation, waited some time before answering. The right pupil was the larger and was immovable; the right side of the face moved less than the left. No paralysis of limbs. About three months later he had convulsions which recurred with increasing frequency for two months, when he died.

CASE X. Mr. F. had primary sore in July, soon after secondary eruption; in October some disturbance in sensation in right hand; one morning in November the right hand was numb, and the right leg gave him trouble. During the forenoon he lost speech; was able to go home alone. The right hemiplegia increased until he could not walk. Subsequently he gained so he could go around the house. His face was not paralyzed, tongue was protruded to the right. The next spring the right arm was contracted, deep reflexes were exaggerated on the right. He had partial aphasia; sometimes he could answer questions but not always. He was unable to give the names of objects, but recognized the correct name when it was given. He continued in this condition so long as iodide of potassium was given. When that was omitted, I believe he had a convulsion. I do not know the subsequent history.

MYELITIS.

Syphilis of the spinal cord is less frequent than cerebral syphilis. There are no special symptoms indicating its presence as distinguishing syphilis from other lesions of the cord. Perhaps many cases of tabes reported as cured were cases of syphilitic lesion of the posterior columns. When there are other symptoms referable to the head the diagnosis may be made with some degree of certainty. Otherwise the general history of the patient must be the guide.

The prognosis in spinal syphilis is much less favorable than in cerebral syphilis.

CASE XI. The following case might well have been considered one of tabes, but the rapid and complete recovery would not warrant that diagnosis. Mrs. B. was sent me by her family physician. Six or seven years previously she could scarcely read, saw double, left ptosis; recovered without treatment. About a year before I saw her she had occasionally a numb, sleepy sensation in one arm and hand. She had had trouble in walking, her legs being weak; this weakness varied from day to day. Two months later the legs felt numb and there was a sense of constriction about the waist. She had had slight shooting pains in the legs and left arm.

There was diminished sensation in the left hand and thighs; in the feet sensation was normal. Patellar tendon reflex was absent on both sides. She walked unsteadily with her eyes shut.

Her physician knew she had a specific taint. Under iodide of potassium and mercury she entirely recovered.

CASE XII. This case is, perhaps, as characteristic of spinal syphilis as any case I could select. The control the iodide had over the disease in delaying its advance for more than two years is of interest, and the rapid progress which followed its discontinuance is instructive. Mr. T., aged thirty-five, said he had had three chancres, had had sore throat, but no other symptoms. Eight months before I saw him he noticed a trembling in the left leg. Within forty-eight hours the leg became heavy and lame about the ankle.

The foot felt heavy and dead; this feeling extended upwards and when it reached the knee it was like drawing a leaden leg after him. In five weeks from the first appearance of the above symptoms these sensations had extended to the thigh and the right leg began to be similarly affected. He had no numbness, no tingling nor pain in the legs, only the "dead feeling" in his feet. When both legs gave out he had a sense of constriction about the waist and around the ankles. There had been some retention of urine and twice temporary incontinence.

During the three months just previous to my seeing him, his legs were at times suddenly drawn up in bed without his knowledge; this was most common in the evening while sitting up. When this contraction was sudden, he had a sharp pain in his back. At one time he had regained partial use of his right leg, then he had a feverish attack with delirium, and afterwards his condition was worse.

There was marked diminution of sensation in the legs and lower part of the abdomen. He could draw up the right leg, but not the left. The knee jerk was somewhat exaggerated on the right, not on the left.

He received iodide of potassium in increasing doses. After two weeks, while he was taking thirty-five grain doses, he had a sensation as if hot water were running over or through both legs, and the thighs were tender to the touch; he could manage his legs better; below the knees he felt more natural and stronger; there were fewer attacks of contraction. The iodide of potassium was increased to two hundred and seventy grains a day. He slowly improved, was able to draw up both legs, could sit in a chair most of the day, but was not able to walk; could move his legs in bed. After about two years and a half, he had some bad feeling, and without medical advice left off the iodide. He became worse, had severe pains in his face. He sent for me. I found there was total paraplegia with almost total anesthesia; the left arm and left side of the face were partially paralyzed; he was blind with the left eye. He soon after died.

NEURITIS.

Syphilis of the peripheral nerves is not common; lesion of nerves due to syphilitic tumors may not be infrequent, but primary syphilitic neuritis is not easy to recognize. I know of no special diagnostic symptom. The following case, considering all the circumstances, probably belongs to this class.

Case XIII. Mrs. P., aged twenty-eight, wife of a sea captain, was never very well; her eyes troubled her after measles; she had nervous headaches caused by using her eyes. About three months before I saw her she began to have a numbness in the right ring and little fingers, so that at last she could not dress nor feed herself; there was also pain in the hand, more along the ulnar border, not in the wrist. After using the hand in cutting out a dress, it swelled, and the pain extended to the middle of the forearm, which was contracted on the arm. Since then the pain had been severe, burning and smarting in character. There was a purplish eruption on the arms and legs which did not itch. There was tenderness over the principal nerves of the arm. Blisters were applied over the tender spots and iodide of potassium was given in increasing doses. She entirely recovered. I could not question directly as to syphilis, but the history and course of the disease renders it very probable that it was a case of syphilitic neuritis.

It will be noticed that these cases are not peculiar in their nature from those caused by other lesions of the nerve centers. There is no symptom pathognomonic of syphilis of the nerve centers. When, however, the succession and grouping of the symptoms in any case are considered, we may obtain a hint as to the nature of the process.

Many of the cases reported presented a series of attacks, the earlier being generally the less severe, headache being frequent; the later attacks sometimes very similar, but often more severe and with additional phenomena. The earlier symptoms had disappeared so entirely in some cases, as to lead to the suspicion that there had been only a temporary circulatory disturbance. Among the group of individual symptoms which are most significant of syphilis, besides headache, which has been already fully described, are paralysis of the motor muscles of the eye. Isolated paralysis of these muscles should arouse a grave suspicion of syphilis. Monospasms and localized paralyses due to cortical lesion, without previous trauma, are also symptoms which should awaken attention. Aphasia, without paralysis, if hemorrhage or embolism can be excluded, should have the same weight. Such repeated and ephemeral attacks of hemiplegia as are described in Case VIII should put the physician on his guard.

The time at which nervous symptoms appear after the primary infection is extremely variable. I find from analysis of the above cases and others not reported, two and one-half months the shortest interval; twenty-five years the longest; in the majority of cases the nervous symptoms appear within three years. I was surprised to find so many under one year.

In about half the cases there was no knowledge of the primary disease, or it seemed desirable not to inquire too closely into the patient's antecedents.

I hesitate to say much about prognosis. If headache is the only symptom, or if they are variable and intermittent, the prospect of recovery is fair. I have followed such patients for years and seen no relapse. If the symptoms point to organic change, recovery is very doubtful; but even under such conditions the progress of the disease may be arrested. Some of the cases show that it is necessary to continue the treatment, at least intermittently, many years, and that if omitted entirely there is danger of a serious aggravation.

In treating syphilis of the nervous system, it is often necessary to act with great vigor. In slight cases a moderate dose of iodide of potassium may be all that is necessary; fifteen to twenty grains three times a day, or even less, may be sufficient to relieve headache. If this proves to be so, there is no special need of resorting to large doses; but the drug should be continued some months after the pain has ceased. Where the symptoms are more serious it is dangerous to temporize. I have never regretted giving large doses; I have been sorry a few times that I

gave small doses. If there is reason to suspect lesions to nervous structure the iodide and mercury should be given at once in sufficient doses to make an impression. Ten or fifteen grains three or four times the first day, increased to twenty or twenty-five the second day, are none too large doses of the iodide of potassium. In a case where hemiplegia seemed to threaten, the patient received thirty grains during the first night, the next day twenty grains four times, the following day thirty grains four times. In a case of neuralgia, probably of syphilitic origin, I gave with benefit seventy grains the first day, and one hundred and fifty grains daily afterwards for nearly three weeks. Three hundred and eighty grains daily has been the highest dose reached in any of the cases reported. I have given much larger doses, but without benefit, and also without harm, to the patient. In some cases, small doses of five and seven grains three times a day were illy borne, causing various unpleasant symptoms; but when the dose was increased fourfold these unpleasant symptoms disappeared, and the patients improved rapidly. Several years ago I had the same experience, one hundred and twenty-five grains daily being more acceptable to the patient than forty-five grains, and in another patient sixty grains daily caused less discomfort than fifteen grains.

In a few instances the very large doses given with mercury have caused diarrhea. This may have been because too little water was given with the iodide, though I think not. A few drops of tincture opium relieved it, or it ceased on diminishing the dose. Where there has been clear evidence of syphilis other discomfort has been rare; in some doubtful cases sixty grains a day have given rise to such disturbance as to oblige a discontinuance of the drug. Many patients have gained in appetite and flesh while taking the medicine. If taken largely diluted with water, the stomach is rarely disturbed by the iodide. I have found that patients are not affected alike, some are disturbed by it taken before meals, and prefer taking the dose after meals, others prefer to take it before meals; others, when a large amount is given, like better to divide it, taking part before and part after meals.

In severe or threatening cases it is better to combine mercury with the potassic salt. Inunction is recommended by many, and I sometimes use it, but the bichloride or biniodide internally is generally preferred by patients, and I think answers the purpose well. I have occasionally combined inunction with the internal use of mercury, where I desired to make a rapid impression. I have very seldom given more than half a grain of the mercury.

Other than this specific treatment may be needed. Iron and cod oil are often of advantage. It is scarcely necessary to enumerate the other methods by which weakness and general debility may be combated.

This course of treatment must not be stopped when the symptoms have disappeared. It should be remembered that the poison is still in the system and ready to cause further trouble. I have seen several cases where too great confidence in the cure has been followed by a return of the old with the addition of new and more serious symptoms. It may not be necessary to continue the very large doses, but forty-five or sixty grains a day may be given for several weeks. If the patient can be under control, it is well occasionally to have recourse again to the iodide even if no new symptoms arise. A few cases lead me to think that when there has been organic change of the nerve centers it is safer to continue the medicine uninterruptedly

Medical Progress.

RECENT PROGRESS IN OPHTHALMOLOGY.

BY MYLES STANDISH, M.D., AND WILLIAM D. HALL, M.D., BOSTON.

LOCALIZATION OF THE MACULA LUTEA IN THE BRAIN.

LAQUER,[1] in face of a recently published monograph which locates that part of the cerebral cortex which represents the macula as being in the anterior portion of the calcarine fissure, believes from the study of a recent case that it should be considered as being in the posterior portion. About one year before his death the patient developed a bilateral hemianopsia, but retained excellent vision in a small central area. The autopsy showed the right occipital lobe to be softened in the neighborhood of the calcarine fissure, except in the most posterior portion about 18 mm. from the tip of the lobe where the cortex and medullary portion were completely intact. Much the same condition was found in a second case in which a bullet had pierced the back of the head. It is fortunate that a center is located in each hemisphere.

OCULAR LESIONS CAUSED BY LIGHTNING.

Gonin[2] noticed in the case of a patient who had been struck by lightning superficial opacities of the cornea, swelling of the face and ciliary injection. After a few days, an opacity appeared in the posterior part of the left lens, which afterwards cleared, at about which time opacities appeared in the anterior part of the right. Both nerves became partially atrophic, with corresponding reduction in vision. Literature shows cataracts in 19 of 22 cases; there was atrophy in 8. The atrophy of the nerve is usually unilateral, and only appears after weeks or months have elapsed. In almost all of the cases conjunctival, corneal and skin symptoms were present. Iris involvement even attained the severity of an irido-cyclitis. The motor disturbances of the third, fourth and sixth cranial nerves were temporary in character. As a result of experiments made by Hess and others, he concludes that the ocular lesions caused by direct action of electrical discharge upon the tissues of the eye differ from those which result from the effect of

[1] Virchow's Archiv., v. 175, No. 3.
[2] Annal. d'Oculist., Feb., 1904.

the light from an electric flash or spark. Usually the only symptom in common is conjunctival hyperemia and ciliary injection. The lesions resulting from electrical discharge may be ascribed to the mechanical action of the current upon the tissues as well as to the electro-chemical phenomena.

DIABETIC LIPEMIA.

White [3] reports the recognition of fatty blood in the retinal vessels with the ophthalmoscope, and refers to cases previously mentioned. Although most frequently seen in diabetes, it has also been described as occurring in alcoholism, phosphorus poisoning, pneumonia, peritonitis and gout. Under the microscope, in addition to the fat globules, fine granules have also been noticed. The presence of fat is undoubted, as it stains with osmic acid, but the finely granular deposit shows no such change, and is probably albuminoid. Futchner found that ether only partly cleared up the turbidity of the blood, and many of the granules were not stained black by osmic acid, and therefore reasons that the turbidity is only partly due to fat, and suggests that the granules are in part albuminous. It has been also suggested that the granules are particles of fat surrounded by an albuminous envelope. In this particular case microscopical examination of the blood failed to show fat or anything that stained with osmic acid, therefore this pale, salmon-colored blood may contain only the fine granular precipitate. Analysis shows this white substance, the precipitate, to be insoluble in water and salines, but more or less so in alkalies. It seemed to be a proteid precipitated by a fatty substance, the exact nature of which the analyst was not able to determine. The fatty substance was considered to be an ester of cholesterine, rather than a true fat, with one of the higher fatty acids, or a mixture of both. The ester was extracted by alcohol and saponified by alcoholic soda, then the residue was extracted by hot chloroform. This, on evaporation, leaves cholesterine, but it was impossible to tell what acid it was originally combined with. As the turbidity may be due to the presence of fat, a precipitated proteid and a substance allied to fat, but not true fat, in varying proportions and combinations, the term "lipemia" is not strictly correct. The color of the arteries and veins varies from a cream to a pale salmon, according as to size, and the whole retina is quite pale. Most of the recorded cases have proved fatal. The author does not, however, believe that the lipemia is the cause of the coma, because in many fatal cases of coma this condition of the blood has not been found. Whenever the lipemia improves, the fundus becomes healthy in appearance. The author's case bore no relation to diet.

"LATTICED" OPACITIES OF THE CORNEA.

Freund [4] adds fifteen cases to the ten already reported by Biber, Haab and Dimmer. The affection is usually hereditary through several generations, begins at puberty, usually bilateral with greater involvement of one side. At first is noticed knot-like elevations at the central corneal area, which are found to be above very small, light gray spots beneath the epithelium. Magnification shows in this a meshwork of fine grayish-blue nodular lines crossing one another in an irregular manner, giving a grating ("Gitter") like appearance. Towards the periphery by transmitted light are to be seen beneath the epithelium numerous grayish lines, black in color. Vision is lowered, accompanied by sensations of dryness and dazzling. These appearances continue with varying intensity till about the fortieth year, but without actually reaching the corneal margin. It may remain stationary or there may develop inflammatory symptoms, destruction of epithelium, and corneal cicatrices. The condition seems to be due to space formation and hyaline degeneration of the cornea.

DIAGNOSIS OF INTRAVAGINAL HEMORRHAGE OF THE OPTIC NERVE BY THE OPHTHALMOSCOPE.

J. Gonin [5] says that sudden blindness accompanied by a milky haze in the papillomacular region and empty retinal arteries do not authorize diagnosis of hemorrhage into the optic nerve or its sheath. Profuse hemorrhages on the borders of the disc or in the vitreous do not always indicate apoplexy of the sheath, and retinal hemorrhages, even if present, are not characteristic of intravaginal effusion. A slight degree of papillary stasis may be considered as a symptom of retrobulbar effusion. An extensive hemorrhage may exist in the sheath without any ophthalmoscopic findings. This condition is so frequently accompanied by fracture or cerebral hemorrhage that little is known as to the visual disturbances caused by simple, uncomplicated hematoma of the optic nerve sheath.

ESSENTIAL INTRA-OCULAR HEMORRHAGES.

Scrini [6] applies this term to those hemorrhages which appear in young adults without apparent cause, who have no hemorrhagic taint and in whom the vessels should be normal. In frequency they occur about once in five thousand cases, and usually between the ages of twenty and thirty. The condition is usually bilateral and in the male rather than the female. The retinal and choroidal vessels in any part of the fundus may be affected by this condition, which is probably dependent upon the rupture of a vein. The etiology is obscure, but it is suggested that it may be due to a disturbed metabolism in addition to causes of congestion, such as inclined position, heat, accommodative efforts, etc. The prognosis, which is uncertain, may range between complete recovery and permanent disability. Relapses are always to be feared. These hemorrhages have no relation as to life.

[3] Lancet, Oct. 10, 1903.
[4] Wien. Klin.-therap. Wochenschrift, Feb. 28, 1904.
[5] Annal. d'Oculist., Feb., 1903.
[6] Archiv. d'Ophtal., March, 1903.

THE INFECTIOUS CONJUNCTIVITIS OF PARINAUD.

Chaillous [7] considers the affection as rare, thus far only twenty cases having been reported. He adds five of his own to a résumé of those already published. The condition was unilateral in eighteen, and adenopathy was present in all passing on to suppuration in seven. Etiology is obscure and bacteriology is negative or contradictory. Best treatment is galvanocautery or excision. The duration may be from several weeks to several months. There are seen upon the conjunctiva raspberry-colored vegetations varying in form and size, usually unilateral, at times accompanied by erosions and ulcerations. There is always preauricular and cervical gland enlargement, not always suppurative, but nevertheless painful to pressure and subjectively. Resolution is tardy. The glandular condition may outlast the conjunctival disturbance. Although it resembles tubercular conjunctivitis, differentiation may be made certain by the microscope and inoculation; in fact, this becomes practically necessary to decide. Non-induration of the conjunctival lesions, suppuration of the glands, absence of eruptions consecutive to the conjunctivitis, easily differentiate "Parinaud's disease" from syphilis.

Verhoeff and Derby [8] report a case of their own and discuss the literature relating to twenty-two other cases. The cases thus far reported have been observed only in France or America. Autumn seems to present the most favorable conditions. The duration varies from two weeks to five months. No organisms were found in the conjunctival secretion which could be considered as being specific.

Examinations of sections of polypoid vegetations were negative as regards micro-organisms in one case, and gave micrococci unconfirmed by culture in another. The casual agent in Parinaud's conjunctivitis is probably not any of the known micro-organisms and is not pyogenic. It has been suggested that it might be of animal origin, and the frequency of this disease in countries in which foot and mouth disease is especially prevalent lends some weight to this hypothesis.

ON OSSIFICATION AND CALCIFICATION OF THE EYE.

Rumschewitsch [9] states that calcareous deposits in the cornea have long been known, but have been observed in the sclera but once only. They are sometimes found in atrophy of the iris, and in the lens with or without ossification of the choroid. True bone may be found in the lens if the capsule has been ruptured. Ossification in the vitreous may follow fibrous degeneration. In cyclitic membranes it is common, but bone in the retina is always in connection with bone in the choroid.

"SIGHTSEER'S" HEADACHE.

Simeon Snell [10] describes cases which lead him to attribute this ill of modern civilization somewhat to the strain to which the lifting muscles are put to in turning the eyeball upward. One person in particular never experienced the slightest discomfort when she sat in the dress circle, but always did when she occupied a seat in the orchestra, then suffering from a severe headache. The same has been noticed in picture galleries by persons who have been looking at pictures hung above the line. Cyclists who bend over the handlebar and thus have to turn their eyes up to look ahead complain of the same trouble as do compositors and others who are obliged to continuously use their elevator muscles.

THE EFFECT OF RADIUM RAYS UPON THE VISUAL APPARATUS.

London [11] concludes as follows: Radium rays excite within the eye light perception, even when considerable distance from it, acting upon the retina from either side, or through more or less penetrable interposed obstacles. Radium and light rays, which differ from each other physically, have likewise a different physiological action upon the visual apparatus. These rays do not increase the visual power of the eye. Although neither reflected nor refracted by the ocular media, the rays are to a certain extent absorbed by them. Prolonged action may set up a keratitis, retinitis, or even phthisis bulbi. Radium rays are probably capable of acting directly upon the central visual apparatus. Bandaged eyes, after practice, can detect the source of the rays and recognize simple figures written in space. When acting upon the bariumplatino shade, the radium rays impel diffused light rays of certain wave lengths mixed with heat rays, which latter are only to a slight degree appreciable to the eye. In a dark room this light may be perceived by retinal elements spared by atrophy of the optic nerve.

PALSY OF THE EXTRA-OCULAR MUSCLES IN EXOPHTHALMIC GOITRE.

Posey,[12] in addition to the ocular symptoms so commonly met with as the cardinal signs of Graves' disease, *i. e.*, the exophthalmos and the so-called Graefe, Stellwag, Dalrymple and Möbius signs, which depend upon various incoördinations and weaknesses of certain parts of the nervous mechanism of the eye, says there is likewise to be met a palsy of the extra-ocular muscles. A review of the literature relating to this condition makes it evident that cases of this sort are not very rare, and are to be considered as forming a part of the symptom complex. On account of the uncertainty which still exists regarding Graves' disease, it does not seem to be possible to state definitely regarding the nature and seat of the lesion, though it would appear, at least in those cases where there was more or less ophthalmoplegia externa, and especially in those in which there were associated lesions in the facial, hypoglossus and glossopharyngeal nerves, that the palsy was of central origin, originating in

[7] Annal. d' Oculist., January, 1904.
[8] Knapp's Archiv., July, 1904.
[9] Arch. f. Augenheilk., 48, p. 113.
[10] London Hospital, 1904.
[11] Graefes Arch., lvii, 2.
[12] Am. Jour. Med. Sci., July, 1904.

the nerve nuclei. Considering these palsies as due to involvement of nerve nuclei is strongly suggestive of a central origin in Graves' disease; and while the exact nature of the changes in the nuclei is yet undetermined, it is probable, as these palsies are sometimes transient and as autopsies have thus far failed to reveal anything definite, that the condition may be functional, an irritation of centers by toxins, generated in the system by some perversion of the thyroid gland.

TREATMENT OF ATROPHIC RETINÆ WITH RETINAL EXTRACT ("OPTOCINE").

Doyne, R. W.,[13] observing a temporary improvement in a retinitis pigmentosa patient who had been vomiting violently on a sea trip, thought it might be due to the increased blood supply to the head, and with this in mind, ordered amyl nitrite, recumbent position and red glasses, the latter being in his opinion less exhausting to the retina. To feed the retina, starved by diminished blood supply, he commenced giving the raw retinæ of sheep and oxen, to the number of from six to nine each day. The extract, "opticine," in his opinion seems to have all the value of the fresh retinæ. He claims improvement in retinitis pigmentosa, retinal degeneration in high myopia, choroiditis, tobacco amblyopia. Although he admits the possibility of suggestion, he is sure that there is an actual improvement in function. The author believes that the preparation has a selective action upon the rods and cones, and that it furnishes a necessary element of nutrition. In a more recent article,[14] the subject has been more carefully elaborated, and detailed reports of cases treated are included. At first, the fresh retinæ were given, with the idea of supplying the starved retinæ with a food possessing a selective action, but in the light of further investigation the markedly good results rather point to the presence of some physiological action, as in the case of the thyroid gland.

COLLARGROL.

Darier[15] has found this silver preparation to be painless and to be of use as a 1% solution on dacriocystitis. He has used solutions varying from $\frac{1}{100}$ to $\frac{1}{1000}$ as sub-conjunctival injections, but wishes more cases before generalizing.

Leloutre[16] reports its use in the form of a 15% ointment rubbed into eyelids, axilla and front of elbows five times a day in conjunction with irrigations of bichloride of mercury in treatment of hypopion ulcers, with brilliant results.

METHYLENE BLUE IN THE TREATMENT OF VARIOLOUS OPHTHALMIA.

Painblan and Taconnet[17] have seen during the epidemic of 1902–3, 48 affections of the eye in 935 patients who had smallpox. In addition to "borated water" lotions, a solution of the methylene blue ($\frac{1}{500}$ and subsequently $\frac{1}{300}$) was systematically instilled several times a day. All cases of conjunctivitis, not excepting those with an abundant purulent discharge, became well in a few days, and in no case of conjunctivitis in which this remedy was used from the beginning was there a corneal complication, and in those cases in which the corneal process had already started up, this treatment was very satisfactory in its results, as the infiltrations seemed to quickly clear up and further progress of the process seemed to be arrested. Absorption of already existing hypopion seemed to be hastened. Even in cases where there was a partial destruction of the cornea with hernia of the iris, it was likewise efficacious. When used after the thermocautery in cases of prolapse resulting from large ulcers, purulent destruction of the eye seemed to be avoided.

CUPROCITRAL IN THE TREATMENT OF TRACHOMA.

Von Atlt[18] describes this remedy as a 5 to 10% mixture of citrate of copper and glycerine ointment (Austrian). It is turquoise blue, and remains stable for a year if kept in glass. It must be placed in the cul-de-sac by means of a glass rod, after which light massage is employed through the closed lids for one-half minute. At first use the 5% strength three times a day. It is to be used in the class of cases in which formerly the sulphate was used, but is not indicated in the mixed class, especially if characterized by marked lymphatic tendencies, profuse secretion, advanced corneal lesions or ciliary irritation. It is not painful, being neither irritant nor caustic, and it has the additional advantage that it may be applied with safety by the patient. The author has collected 306 cases and notes improvement in 263.

EUMYORINE.

Goldberg[19] finds this drug nearly related to atropine, and in solutions of $\frac{1}{100}$ was preferable to a $\frac{1}{1000}$ solution of atropine, in that the mydriasis was prompter and more efficient, and disappeared by the end of the second day. It is quicker and more complete than homatropine of the same strength. So far as Goldberg's experiments went, there was nothing to show that it increased the tension or did any injury whatsoever. This drug is the nitrate of the methyl-ammonium base of atropine, and in a 2% solution is less poisonous than atropine or hyocine.

Lindenmyer[20] describes it as a white, odorless powder, readily soluble in water and fifty times less poisonous than atropine. He uses solutions varying from 1% to 10% strength. One per cent solutions caused dilatation in from ten to twenty-five minutes, *ad maximum* in fifty minutes, and lasting twelve hours. Cycloplegia follows the mydriasis, becoming complete in two or three hours, duration depending upon the age. He considered the 1% solution as midway between atropine and homatropine. Considers it to be

[13] Brit. Med. Jour., July 25, 1903.
[14] *Ibid.*, Sept. 28, 1903.
[15] La Clin. Ophtal., April, 1903.
[16] *Ibid.*, May, 1903.
[17] Révue francaise de médecine et de chirurgie, June 20, 1904.
[18] La Clin. Ophtal., July 10, 1903.
[19] Heilkunde, No. 3, 1903.
[20] Berl. klin. Woch., Nov. 23, 1903.

indicated in irritative corneal conditions as phlyctenules and foreign bodies, but inferior to homatropine for examination as the cycloplegic effect is too protracted.

BRUCINE IN OPHTHALMOLOGY.

Skorjuchow [21] has used a preparation containing less than 0.1 strychnine. He injects in the temporal region or under the skin of the arm from 0.005 to 0.02. If the injections are made daily, he uses only 0.01, and if there are longer intervals he uses 0.02. In atrophy of the nerve he made as many as 26 injections, and in retrobulbar neuritis as many as 40 or 50. The visual field must be carefully watched, as the treatment must be interrupted on the slightest signs of retinal irritation. He claims improvement in 67 eyes out of 89 treated. In 18 no improvement was noted, and the condition became worse in 4. He believes that this drug increases the intensity of central and peripheral vision of both healthy and diseased eyes, stimulates the action of the muscles, diminishes the paresis, and dilates the vessels of the fundus. He advises its use in the various amblyopias, in acute and chronic retrobulbar neuritis of alcoholic or other origin, ordinary optic nerve atrophy, retinitis pigmentosa, and in the various forms of ocular paralysis. He claims it to be better than strychnia, insomuch as it dilates the vessels of the fundus, thereby carrying away pathological products and also contributing to the nutrition. It is contra-indicated in all acute inflammations as, for example, retinitis.

STOVAINE, A LOCAL ANESTHETIC.

De Lapersonne [22] reports results obtained by him when using this anesthetic which Fourneau has extracted from the group of amino-alcohols. The anesthesia obtained is sufficient for the usual operations upon the conjunctiva and cornea, and even the cataract operation. It causes an exfoliation of the corneal epithelium, trivial in nature. It is inferior to cocaine in that it is more painful, and the corneal anesthesia is less complete and less lasting. Subcutaneous and subconjunctival injections of stovaine are more satisfactory than cocaine, as the anesthesia comes on within one minute and gives all the time necessary for an operation.

SUPRARENIN MURIATE.

Schnaudigel [23] states that this product is cheaper and more stable than adrenalin, and that it can be used pure or in combination with atropine, eserine, cocaine or zinc sulphate. He advises its use in diseases of the tear passages, phlyctenular conjunctivitis, spring catarrh and in operations.

BENZOATE OF LITHIUM IN THE TREATMENT OF CORNEAL MACULÆ.

Mazet, [24] believing that calcium carbonate and phosphate exist in many corneal lesions, thinks it reasonable to expect an improvement in vision if these lime salts be dissolved. Bunbacher attempted this with a 5% solution, but found it too violent for habitual use. In the benzoate he thinks he has found a valuable adjuvant, and claims good results after five years' use, especially in cases in which the usual methods had been tried faithfully without avail.

[21] Die Ophtal. klin., May 29, 1903.
[22] Annal. d'Oculist, July, 1904.
[23] Die Ophtal. klin., July 5, 1903.
[24] La Clin. Ophtal., May 25, 1903.

Reports of Societies.

AMERICAN PEDIATRIC SOCIETY.

SIXTEENTH ANNUAL MEETING AT DETROIT, MICH., MAY 30, 31, JUNE 1.

FIRST DAY, MAY 30, 1904.

THE President, AUGUSTUS CAILLE, M.D., in the Chair.

INTUSSUSCEPTION; CARE BY SLOUGHING OF THE INTUSSUSCEPTUM.

DR. IRVING M. SNOW, Buffalo, read this paper, reporting the case of a subacute intussusception occurring in a baby seven months old, with illness of sixteen days, with symptoms simulating ileocolitis on the sixteenth day and protrusion of a gangrenous intestine from the anus. The removal of six inches of necrotic intestine hanging outside the sphincter ani followed with recovery. Dr. Snow also gave the abstract of four similar cases. When the baby was taken to the Sisters' Hospital and placed under the care of Dr. Eugene Smith, it was clear that the child's symptoms — vomiting, diarrhea and emaciation — for the preceding sixteen days were due to an acute intussusception, and that a portion of the bowel had become gangrenous and had twice protruded from the anus. At no time had there been a complete obstruction to the fecal current, for gas and feces had been passed every day. The baby was in too poor a condition for laparotomy, and there seemed no urgent indication for operative treatment. The baby was fed and well stimulated. At a later date the bowel again protruded from the anus, and Dr. Smith pulled down the necrotic gut outside the sphincter, ligated it distal to the living tissue to avoid hemorrhage, cut below the ligature and pushed back the stump into the rectum. Six inches of intestine were removed. The ligature in no way interfered with the fecal current. Sixty days after operation the patient was in perfect health. This removal of the necrotic mass undoubtedly had the effect of shortening the illness or saving the patient's life. To delay would have invited a source of infection and auto-intoxication and irritation; to remain in the intestinal tract to produce pain, abnormal peristalsis, impaired assimilation and increasing prostration. When the microscopical examination was made, the pathologist was unable to tell whether it was large or small intestine, or whether the exterior was serosa or mucosa, because the sloughing was so great. Such a case was exceedingly rare and Dr. Snow had been able to find but four other recorded cases.

DR. C. P. PUTNAM, Boston, asked if the normal function of the intestine was retained and fecal matter and gases came through.

DR. SNOW answered that they passed every day.

DR. PUTNAM asked if this was not very rare.

DR. SNOW replied that in Henoch's case there was complete obstruction. The case he reported simulated ileocolitis, so that a differential diagnosis was

almost impossible. There was mucus and blood passing through, and a diagnosis was only made possible in his case by the protruding necrotic mass from the anus.

Dr. Caille, New York, asked what portion of the gut protruded.

Dr. Snow replied that it was impossible to tell, but his own opinion was that it was a portion of the ileum. It was also impossible to say whether it was mucosa or serosa on the outside of the extruded mass.

AN INVESTIGATION OF THE INFLUENCE OF LABORATORY FEEDING ON 216 INFANTS WITH DISEASES OF THE GASTRO-ENTERIC TRACT, WITH SPECIAL REFERENCE TO THE WEIGHT INDEX.

Dr. Maynard Ladd, Boston, presented this communication and offered the following conclusions to a very lengthy and interesting paper: The influence of laboratory feeding was studied on 216 infants with diseases of the gastro-intestinal tract, the great majority of which were cases of fermental diarrhea and ileocolitis. The acute cases were ill on the average 17 days and the chronic cases 3.2 months before they were brought to the clinic for treatment. They were treated for lengths of time varying from one to thirty-one weeks. As an aid in comparing the influence of of the feeding upon infants of different ages and stages of development, the nutrition of each infant at the beginning and the end of treatment was judged by the estimation of its weight development. This was calculated from the *weight index*, which was simply the ratio of the weight of a given infant to the weight of the average normal infant of the same age. Judged by this standard, over 50% of the cases had a weight development of only 40 to 70% when first seen. As a result of the treatment, the series was divided into four groups.

Group I. Cases which maintained or increased their weight index while on laboratory milk, and entirely recovered from the acute gastric and intestinal symptoms for which they were brought to the clinic. This group comprised 109 cases, or 50.4%. The group as a whole gained 8% in weight index, or a maximum average gain per week of 156 gms. from the lowest weight reached during treatment.

Group II. Cases which showed a loss in weight indices and yet recovered from their acute gastric and intestinal symptoms and showed material gains in weight. This group included 58 cases, or 26.8%. The maximum gain per week from the lowest weight reached was 94 gms. This was not sufficient to maintain the weight indices, the average loss of which was 3.4%. This group received treatment on the average for only 5.9 weeks, as compared with 8.5 weeks in Group I.

Group III. Cases which for the most part recovered from the acute gastric and intestinal symptoms while under treatment, but whose weight was not materially increased. This group included 37 cases, or 17.2%. The average length of treatment was 3.7 weeks, the loss in weight index 7.2%, and the average loss in weight from the lowest point reached was 6.5 gms. per week. Eleven cases in this group were " not improved " while under treatment. Of these, 8 could not be traced and some of them may have died.

Group IV. The fatal cases. There were 12 in number, making a mortality of 5.6% in the series of 216 cases the results of which were known at the time the treatment was stopped.

All the cases in the series were sick infants, and the results are not to be compared with those obtained in the feeding of average healthy infants. The infants were fed upon appropriate modification of laboratory milk, usually beginning with very weak whey cream mixtures. This milk was administered within twelve or eighteen hours after the first visit, and was gradually increased in strength. In one half the cases there was no initial loss in weight following this method; in 87% of the cases the initial loss was less than one half pound (248 gms.).

DISTURBANCES FROM HIGH FAT IN INFANT FEEDING.

Dr. L. E. Holt, New York, read this paper. He said that observations made during the past winter had convinced him that many physicians and nurses who attempted to direct infant feeding according to the general principles of the percentage method had greatly erred in respect to the fat, with at times most serious results. This was particularly so when they selected a very rich or Jersey milk with 5% or 5.5% fat, because the average milk looked so blue and poor; they used this as they would have employed an ordinary 4% fat milk. Therefore, instead of giving in the formula a 3.5% or 4% fat, as they intended, the fat had often been 5%, 6%, or even higher. The object of the paper was to record some of the results seen when such high fats have been added. In the first cases reported the following points were noted: The baby stood the high fat so long without any disturbances; the suddenness and severity of the disturbances when they did come; the convulsions, tetany, laryngismus stridulus that appeared; the very large liver; the stools consisting of almost pure fat; the cessation of the nervous symptoms on first reduction of the fat, but their return one week later, the fat meanwhile having been put back to nearly previous strength. The points that were noted in Case II were as follows: Development of slight rickets, as shown by late dentition and cranio-tabes; the return of convulsions one week after the first ones occurred, the food meanwhile having been increased to nearly full strength, as in the first cases cited; the bowels were clinically constipated unless magnesia was given; the fat was not so high and the nervous symptoms were not so severe as in the previous case, and a loss of one pound followed the digestive symptoms. Another case was reported which showed the bad effects from high fat in vomiting cases, the development of a high degree of gastric catarrh under this treatment; the steady loss in weight, and the value of peptonizing and stomach washing. He thought the chief trouble was brought about by using rich milk of Jersey cows as though it was an ordinary milk. It was well known that gastric disturbances would follow high fat feeding. Nervous disturbances should be often treated by attention to this high fat. Chronic constipation might be present and the stools consisting almost wholly of dry and hard fat movements, and here often the mother or nurse would go on increasing the amount of fat and so make matters worse. With increasing experience, Dr. Holt said he was using less fat and higher proteids, especially in those cases where there was much derangement of digestion.

Dr. Charles G. Kerley, New York, said that he could not get the same results as Dr. Ladd, and he gave smaller amount until the fever was normal and the activity of the bowels had ceased and the stools were practically normal, *i. e.*, the blood and mucus had disappeared; then he gave a weak formula, and never over ½% fat and 4 or 5 sugar. With regard to the digestive disturbances, he thought that Dr. Ladd would have gotten better results if he had washed the stomach out more; such a procedure increased the child's appetite and also its capacity for food. This was specially valuable in the absence of vomiting. In the Infants' Asylum in New York he said they were unable to get milk containing more than 2% fat to

children under six months of age; these children were less susceptible to intestinal derangements; they thrived better in every respect on a low fat milk.

DR. ROWLAND G. FREEMAN, New York, said the most important thing in the paper was the working out of the weight index, and he asked if it would not be better to substitute for the weight index measurements of the length; if a child weighed five pounds at birth and measured seventeen inches in length, he thought the weight index should be corrected for that child; if a child of the same weight measured nineteen or twenty inches, such a child should have more than what was gained by the normal child because it was a large but an emaciated child. Regarding high fats, he said that much ignorance existed as to what was high fats and what cream was; in the books cream was ordered and mothers and nurses added cream to the milk, regardless of the fact that it might be a centrifugal cream of 40% instead of the 16% fat. The Straus milk in New York used low fat.

DR. FLOYD M. CRANDALL, New York, asked Dr. Ladd whether large babies, those weighing ten pounds, would keep up the weight index to the end of the first year. He thought that the general practitioner should have in mind what Dr. Holt said regarding constipation and the ingestion of fats; it was a very important point.

DR. J. L. MORSE, Boston, corroborated all that had been said regarding high fat. Eczema was often due to too high fat. Another sign he had not heard mentioned was the ammoniacal urine which would cease when the fats were reduced, and his explanation was that a large amount of fat took up alkalies from the intestines, and so there were less to be absorbed by the system; the alkalies elsewhere then were called upon, with the resulting changes in the urine. He believed that much ignorance was displayed by mothers and nurses in knowing the difference between top milk and top cream, and here was a chance for missionary work to be done.

DR. THOMAS M. ROTCH, Boston, believed that the study of fats should be more extensively carried out than it has been; the intelligent use of fats was to be advocated. Some babies have constipation and some have diarrhea as the result of high fat; there may be a weakening of the fat digesting properties. A baby may have a perfect fat digestion and yet become weaker and develop serious nervous symptoms. Intelligence on the part of mother and nurse was much needed in order to give the proper quantities of fat.

DR. B. K. RACHFORD, Cincinnati, asked what was the cause of the nervous conditions which developed from too high fat feeding; was it an auto-intoxication from the intestinal canal?

DR. L. E. LAFETRA, New York, thought that Dr. Ladd's study was of great value, and he hoped that he would continue his studies and report not only the children with high weights, but those with low weights. It was his experience to note that babies born prematurely, weighing 4, 5, or 6 pounds, would increase in weight more rapidly and at the end of one year would weigh three times the birth weight, whereas other children would not increase so rapidly. The normal growth of normal large and normal small babies should be considered.

With regard to the treatment of these cases of gastro-intestinal affection occurring in summer, in the Vanderbilt clinic, certain of the proprietary foods were used with benefit during the early period of the treatment and before the giving of the milk. In these cases it was necessary to keep the fats very low. As Dr. Holt pointed out, a child during the first three or four months of life has a great capacity for fat, and can take three times as much fat as proteid. Later the capacity for fat grows less, and the child can take only twice as much fat as proteid. Personally he had no difficulty in having the home modification of milk carried out with a fair amount of accuracy by teaching the mothers how to do it.

DR. CHARLES P. PUTNAM said that the required information could be easily obtained by using a Babcock tester.

DR. J. E. WINTERS, New York, said that these disturbances referred to were not due to percentages, but to too frequent feedings. Constipation was not due to the high fat so much as to the excess of food beyond what any child should take.

DR. A. JACOBI, New York, said that he had been writing and speaking on this subject for forty or fifty years, and yet he was not prepared to enlighten them regarding it. In nearly all these cases indican would be found and that denoted intoxication. It had been stated that little babies would tolerate fat and the older ones would not; that was not so, because little babies would not tolerate fat at all. It was a wonder they were not killed by it, and when they could not stand more fat, then they break down. It was not because the capacity for fat was less in babies of six or seven months old that caused their illness, but because they could not stand any more and they break down under the strain.

With regard to the constipation, the explanation was this: Insufficiency of the muscular layers. These babies were so fat, so rotund and weigh so much, but it was only fat and no muscle. Regarding the amount of fat, he believed that they would thrive on milk with a little over 2% fat.

DR. LADD, in answer to Dr. Freeman's inquiry, said that he had not taken any measurements at all, his paper referring to weights and not to lengths.

DR. HOLT said there were two kinds of cases, one in which the milk must be stopped at once for a short time, the other where it must be stopped for a long time. Quite a large number of cases required that the milk should be stopped until the acute symptoms have passed, and then the children could be again placed upon the milk. He thought it was a mistake in the summer diarrheas of children to keep them too long from milk. In the first class of cases where there may be an acute intoxication "milk poisons" produced, they must be kept off the milk until they are almost well. This was a different class of cases from where we had simply an intestinal indigestion due to dysenteric organisms.

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS IN AN INFANT, WITH REPORT OF A CASE.

DR. JOHN DORNING, New York: The child was born March 23, 1903, after a natural labor, of healthy parents. Weighed at birth 8¼ pounds. The diet was breast milk exclusively. Child vomited after nursing. The mother never noticed mucus in the vomit, and the milk was always returned fluid. The baby seemed to be able to retain water. Child would frequently sleep twelve hours and never awoke more than once during the night, and seemed always to be sleepy. Never cried, but fretted after vomiting until nursed again. The bowels moved several times a day, always yellow in color and digested. The baby grew long; the face was plump and body not thin, but the arms and legs were always very emaciated. The above history was obtained from the mother.

On May 24 Dr. Dorning saw the baby and he found a pale, extremely emaciated, very weak and listless infant. The abdomen was somewhat distended, but soft, tympanitic, and not tender on pressure. A small mass could be found in the epigastric region, just to

the right of the median line. Chest examination was negative. Urine was negative. Tongue was clean. The diagnosis was made of hypertrophic stenosis of the pylorus and gastric catarrh, but, because of the low vitality of the baby, operation was not entertained. Gastric lavage and nutrient enemata were advised. He did not see the baby again until June 8, when he performed an autopsy.

The records showed that until June 7, when the child died, the stomach had been washed out, bringing up milk and mucus each time, that he was nursed from four to eight times a day, not more than ten minutes at a time, and vomited from two to eight times a day. The vomited matter usually consisted of fluid milk, but sometimes it was curdled and mixed with mucus. The bowels were variable, but there was no diarrhea. Small doses of calomel, bismuth were given at varying intervals. On the night of June 5 the abdomen became much swollen and the baby fretful. Irrigation of the bowels relieved this distention. On June 7 the baby became unconscious while nursing and died two hours later.

Autopsy was performed on June 8. The stomach was distended, the pylorus thickened and hard, and the duodenum one inch beyond the pylorus was deeply congested. The gastric mucous membrane was pale and showed no ulceration. The wall of the stomach presented a decided thickening toward the pylorus.

A report of the microscopical examination, made by Dr. John H. Larkin, here followed, the anatomical diagnosis of stenosis of pylorus from fibrous thickening of the submucosa and hyperplasia of the circular muscular coat being given.

DR. DORNING said that in recording this case of congenital hypertrophic stenosis of the pylorus, there was added to the rapidly increasing list another unmistakable instance of this affection, verified by autopsy. There were now on record about sixty cases in all. A study of the literature led one to infer that there were either two distinct pathological conditions with similar clinical manifestations, one of which was amenable to dietetic management, and the other, unless relieved by operation, progressed to a fatal termination; or, that there were simply varying grades, or perhaps different phases of one and the same pyloric lesion. The published pathological findings would thus far favor either view.

The pathogenesis of this affection was still a matter of speculation, though it was generally conceded that it originated during intra-uterine life. The condition was thought to be simply a prenatal overdevelopment of the pyloric structures. It must be confessed that, at present, we know very little about its etiology. However, the possible existence of a syphilitic element should not be forgotten, even though the immediate history be negative.

The diagnostic symptoms of hypertrophic stenosis of the pylorus are persistent and apparently cause less vomiting, progressive wasting and a palpable pylorus. The absence of bile in the vomitus would ordinarily indicate an obstruction to be above the entrance of the common bile duct; its presence, however, would not exclude pyloric stenosis. In cases of moderate stenosis in which muscular spasm is perhaps a prominent factor, the gastric symptoms, though sometimes rather pronounced, are generally not very urgent in character, and improve and even seem to subside under dietetic treatment.

The presence of a palpable tumor in the region of the pylorus, in conjunction with the previously mentioned symptoms, established the diagnosis beyond a reasonable doubt. As it was not always possible to detect, with palpitating fingers, small masses in the upper abdominal zone, its absence did not altogether negative the diagnosis. Where the patient's condition would warrant it, an examination under anesthesia might disclose the presence of a thickened pylorus where it could not otherwise be detected.

He said that the symptoms of congenital pyloric stenosis were practically those of pyloric obstruction, and other lesions, such as atresia, polypi and adjacent neoplasms, or cicatricial tissue, occluding the duodenal extremity of the stomach, were so rare in infancy that when symptoms of pyloric obstruction were in evidence this condition should at least be strongly suspected. Every case was not necessarily immediately fatal. Some even lived to a more or less advanced age, suffering all the time more or less dyspeptic symptoms. There were thirty-one autopsies published by Maier in which stenosis of the pylorus was found. In some of these cases the clinical history dated back to childhood. Dr. Dorning said that it was impossible with our present knowledge to predict with any degree of certainty what the future of these cases will be, whether operated on or not. In cases that were intractable to dietetic treatment, operations alone seemed to offer any promise of relief, and they should not be too long delayed.

A CURE OF CHRONIC NEPHRITIS FOLLOWING RENAL DECAPSULATION.

DR. AUGUSTUS CAILLE reported the case of a girl, four and a half years old at the time of operation, who at the age of two contracted measles, and two weeks later received severe burns on back and legs. Two weeks after this there was swelling of the feet and puffiness of face and a little later, ascites. A physician diagnosed the case as one of acute nephritis, and she apparently recovered after four weeks. A month later she suffered a similar attack, also ending in apparent recovery. On the occasion of a third attack, quite severe, with suppression of urine for forty-five hours' duration, she was admitted to the Post-Graduate Hospital Nov. 13, 1900. The diagnosis was then made of subacute nephritis and she was discharged, improved, Dec. 30, 1900. On April 3, 1901, she was readmitted with all the evidences of a chronic nephritis: urine scanty and dark, containing albumin, casts and renal elements, blood and pus. The eyes were puffy and abdomen contained fluid. After a course of sweating, intestinal irrigation, diuretics and diaphretics, she returned home improved. Nine months later, Feb. 1, 1904, she again was an inmate of the babies' ward. There was general edema, enlarged heart, the apex beat being at the sixth interspace, an inch to the left of the nipple line. The second sound was accentuated.

On Feb. 19, 1902, a decapsulation of both kidneys was performed under nitrous oxide and ether anesthesia. There was found a typical chronic parenchymatous nephritis, the large white kidney, on both sides. Each kidney measured over four inches in length and was three times larger in bulk than normal. A diagnosis was made of right and left chronic parenchymatous nephritis. There was primary union of both wounds and convalescence was uneventful. Dr. Caillé then presented a table showing examinations of the urine made before the operation (8), examinations made immediately after the operation (8) and examinations made between ten and thirty days after operation (8). The comparison of these urine examinations was most interesting.

After the discharge from the hospital there was no more edema, headaches or uremia. The patient for a year past had been in perfect health and taken up her school life. The urine was practically normal and the general health was all that could be desired.

DR. CAILLE said that he had observed that nephritis following acute infectious diseases in children had a tendency to complete recovery; children who survived the acute stage, but continued to show albumin and renal elements for several months also frequently made a perfect recovery. In a certain number of cases recovery did not take place. He had recorded seven patients who developed nephritis following scarlatina, diphtheria and measles, all under his personal observation, and who subsequently died of kidney insufficiency, one at the age of five, one at six, two at ten, one at fifteen and two at the time of confinement, at twenty-one and twenty-two years of age. He said that in view of the uselessness of medication in chronic nephritis, the proposition to treat Bright's disease surgically should be met without prejudice.

From his observation in the case reported and in other cases that had come under his observation, he said he would not hesitate to advise inspection of the kidneys through lumbar incision in cases in which an acute nephritis, not secondary to cardiac lesions, did not clear up in a reasonable time, say six or eight months, and would furthermore advise splitting the capsule or decapsulating one or both organs should they appear swollen and enlarged, with the hope of preventing an acute nephritis from becoming chronic and incurable. The same procedure was indicated in acute nephritis with complete suppression of urines.

DR. KERLEY asked what the effects would be upon these children if they became victims of scarlet fever or other infectious diseases.

DR. CAILLE said he could not answer this question. The whole matter was new and very little positive definite knowledge on the subject was yet to be had. There were quite a number of cases that had been operated upon in a quiet way and not yet reported because they were waiting for results. In the case he reported, he was convinced that the benefit from the operation was a very marked one, but whether it was due to increased blood supply or to massage incident to the handling of the organ or not he could not say. He said that Dr. Edebohls was preparing a final paper on this subject of renal decapsulation, and out of 80 cases operated upon, 10 or 12 gave absolutely positive ideal cures, while 8 or 10 were practical cures. Dr. Caillé had seen the operation performed about twenty times without a mishap. He had seen better results from this operation than he had from medication in these cases.

(To be continued.)

Recent Literature.

Radiotherapy, Phototherapy and High Frequency Currents. The Medical and Surgical Applications of Radiology in Diagnosis and Treatment. By CHARLES WARRENNE ALLEN, M.D., Professor of Dermatology in the New York Post-Graduate Medical School. Octavo, 618 pages, 131 engravings and 27 plates. Philadelphia and New York: Lea Brothers & Co., Publishers. 1904.

Allen has divided the text of his book into seven parts. He deals, in the first part, with the history and character of the Roentgen ray, explains its physics, and describes the modern methods of its production and application with especial reference to its use as a therapeutic agent. Part II consists of a short description of the more usual methods of diagnosis, to which but small space is given, as is to be expected in a work dealing almost wholly with the subject of radiotherapeutics. The third part of the book is devoted to a consideration of the application of the Roentgen ray as a therapeutic agent, and the author has made a careful collection of the reported cases, favorable or otherwise, in which the x-ray was employed in cancer, sarcoma and in many skin diseases. In his handling of the much-discussed subject of malignant disease, the author seems to possess none of the blind optimism which characterized the earlier reports of many observers, and he readily admits the apparent futility of x-ray therapy in certain classes of cases, or, for some unknown reason, in sporadic cases of a type usually presenting favorable results. At the same time he ably defends the dignified status which radiotherapy has attained in cases selected as to primary condition or extent of process. In this part of his work, the author comments extensively upon the deleterious effects of the x-ray, especially upon the operator. In the chapter on "X-Ray Burn," the importance of urging upon the operator extreme caution during every possible procedure, especially with regard to his own person, is evidently not underestimated. As to the histological changes and the effect upon active bacteria, the author discusses the various theories and opinions based on the observations of different writers. He agrees with the majority of others that the bactericidal action of the Roentgen ray is neither marked nor constant. The writer urges the importance of the tentative employment of the x-ray in therapeutics, especially with regard to exact and consistent dosage. In the chapter on the medico-legal value of the x-ray, the author emphasizes the fact of possible grave errors arising from the false interpretations of the radiograph by inexperienced or incompetent persons.

The fourth part of the book is devoted to a consideration of light treatment, which includes an exposition of the physics of light, and a description of the various forms of phototherapeutic apparatus. The subject of radio-activity is next taken up, and a collection is made of the published reports of the many experimenters with the salts of radium and other radioactive substances.

Dr. Allen ends his book with a description of the high-frequency currents of Tesla and D'Arsonval, as well as their physical properties and therapeutic possibilities. He expresses the belief that they are useful in cases where there is a condition of impaired general metabolism, although he has been called upon to employ them more extensively in affections of the skin. J. E. B.

An Index of Symptoms as a Clew to Diagnosis. By RALPH WINNINGTON LEFTWICH, M.D. Third Edition. New York: William Wood & & Co. 1904.

This small book, somewhat unique in design, has proved a success. This third edition contains about fifty new symptoms, and the lists of diseases have been made more complete. The book is to be recommended.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, NOVEMBER 3, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

Subscription Terms: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 and 29 Bromfield Street, Boston, Mass.

HEREDITY AND LIFE ASSURANCE.

During the past few years a marked change of attitude has been evident toward the question of heredity in its relation to disease. With the vague knowledge which our forefathers had it was easy to attribute what could not then be understood to a subtle influence for which in some inexplicable way ancestors were responsible. There is probably no more deeply rooted conception in the popular mind than that heredity is an all important factor in the production of many types of disease. This feeling still persists not only among the laity, but in considerable measure among physicians as well. That this has a very large foundation in fact we have no wish to deny, but that much which has been attributed to hereditary influence may be otherwise more simply explained is becoming each year more apparent. That our attitude toward the subject should be revised to meet all the facts of knowledge as now obtainable is not to be questioned, and an analysis of hereditary conditions is now demanded of the medical man which a few years ago would have been thought quite unnecessary. We need as never before to know as definitely as possible what may be legitimately attributed to hereditary influences and what may more probably be connected with all the acquired facts and conditions of life irrespective of the original soil.

We have before us an address by Sir William Gowers on the subject, "Insanity and Epilepsy in Relation to Life Assurance," published in the *Lancet* for Oct. 15, 1904. It will be generally acknowledged that life assurance companies have laid special stress upon the effects of heredity as popularly determined. The interpretation which they have put upon the numerous facts at their disposal has led them no doubt in this course. It has not rarely been impressed upon us that the life assurance societies frequently attach importance to circumstances which probably have but little weight as regards the expectation of life, whereas certain fundamental points in the personal examination of an applicant are overlooked. We refer especially to the examination of the nervous system wherein facts of the ancestry are apparently given much weight, whereas such fundamental signs as the condition of the knee jerks and the reaction of the pupils are overlooked. We have been, therefore, particularly interested in Dr. Gowers' conclusions regarding the question of life assurance risks in relation to certain conditions of the nervous system.

In arriving at his conclusions he has made use of statistics tabulated by Dr. Claud Muirhead, covering a series of nearly ten thousand male lives. Excluding the disease, general paralysis, which Dr. Gowers states causes far more loss to insurance offices than all other forms of mental alienation combined, he arrived at somewhat unexpected results in his analysis of other forms of insanity. In answer to the question as to whether an actually insane person may be accepted for life insurance on any terms he returns an unquestioned affirmative. In this connection he quotes an interesting case which has come under his personal observation wherein a life insurance company made a clear profit of forty-six thousand pounds in the case of a man certified as insane at the age of twenty-eight. He died at the age of eighty-eight, having spent sixty years in an asylum. The imbecility associated with this case was rather in favor of prolonged life than against it, and this must in general be the fact when one considers the extraordinary personal care which such unfortunates now receive at the hands of those in charge of them.

Speaking of family history, Dr. Gowers alludes to the tendency to regard a family history of insanity as almost on a level with that of tuberculosis in its influence on the eligibility of a life. The evidence for this supposition he considers, however, extremely small, and finds on an analysis of Dr. Muirhead's statistics that a family history of mental alienation has proved to be of no significance as regards the duration of life. His own experience is in general harmonious with this conclusion. He states that in very few cases of death from insanity met with in his insurance work has there been indication of such possibility in the family history. From this and many other facts the conclusion is adduced "that in a perfectly healthy proposer no family history of insanity is ground for regarding the life as below

the average, so far as death from this cause is concerned; that a previous attack of mental derangement, or any symptoms of present undefined mental disturbance, should preclude insurance, but that in some forms of established insanity a proposer may be accepted at a considerable extra cost without unreasonable risk."

The question of suicide in relation to life assurance is also considered in this address. Here also Dr. Gowers thinks that so far as the facts at present go the risk of suicide does not augment the risk which a neurotic family history would otherwise receive. Insane heredity he finds plays a small part in suicide. Financial causes and matters relating to the stress of life are a far more potent factor in its production. Even in the case of epilepsy, which Dr. Gowers discusses at considerable length, he thinks certain persons are insurable.

We cannot do more at this time than call attention to the main facts presented by Dr. Gowers. The weight of his opinion must undoubtedly have an influence, verified as it is by many years of experience and accurate observation. In general, we are glad to call attention to this address because, as we stated at the outset, we are continually being impressed with the false perspective prevalent, regarding the obscure diseases of the nervous system. We have no question that if all the facts could be judicially weighed it would be found by other observers as well as by Dr. Gowers that the supposed influence of heredity is far less potent for harm than is commonly believed. Even on the statistical side the matter is very difficult of proper solution, but enough knowledge has certainly accumulated to make us very conservative in our estimates of the effects upon the descendants, of various diseases of the ancestors. The life assurance companies may do much to help on the work by tabulating their statistics in the light of our newer knowledge.

VITAL STATISTICS OF THE TWELFTH CENSUS.

BULLETIN No. 15 of the newly constituted Department of Commerce and Labor is a pamphlet from the pen of Dr. John S. Billings relating to the vital statistics of the twelfth census. In transmitting this bulletin to the public Mr. S. N. D. North, director of the Bureau of the Census, states that in no branch of the work of the twelfth census was the requirement of Congress that the volume be published on a certain date so serious an obstacle in the preparation of the report as in the field of vital statistics, owing to the practical impossibility of compiling the statistics of death on the basis of details of population, inasmuch as the time allowed was not sufficient to make the necessary computations and comparisons. The present bulletin is an effort to fill the gap brought about by the omission of much worth noting regarding the vital statistics of that census. The coöperation of Dr. John S. Billings has been obtained for this purpose, and we have, therefore, a large mass of supplementary data regarding deaths and death-rates which are of distinct value to the statistician.

Dr. Billings, in describing the vital statistics of the twelfth census, draws attention to the fact that few libraries contain documents which offer satisfactory answers to the general questions concerning vital statistics, and points out that the difficulty of obtaining detailed knowledge on various matters regarding mortality is extremely great, owing to the fact that few cities make extensive compilations of the material at hand, and that forms of tables and methods of compilation are so diverse that comparisons are practically impossible. The general statistics, furthermore, published by the Bureau of the Census cover only census years, and the fact that the main purpose of such statistics is to provide comparative data for a large number of different areas in limited space means of necessity a certain superficiality of treatment. It is clear that the factors of interest are so diverse and lead so far that they are quite impossible to bring together in a general report. It is also true that a high degree of ignorance and indifference exists regarding the general subject of vital statistics as related to national growth and development. From this it follows that no adequate legal provision even now is made in many states and cities for a proper and correct registration of births, marriages and deaths. For these various reasons Dr. Billings and the Census Bureau have regarded it as useful to supplement the report which has already appeared. It is of interest to note that no state has a complete registration of births, the nearest to it being Massachusetts, Rhode Island and Connecticut. It also appears that the only states which have a registration of deaths complete enough to make the death-rates worth calculating are Maine, Massachusetts, Michigan, New Hampshire, New Jersey, New York and Rhode Island. No southern state and no western state, with the exception of Michigan, have any satisfactory system. The

analysis of the general subject given by Dr. Billings in a brief space is worthy of the closest attention as bringing out our deficiencies and also as emphasizing the needs of the future.

The larger part of the pamphlet is filled with statistical tables considering population, deaths and death-rates at varying ages for certain cities, including the decade from 1890 to 1900. The death-rate from certain specified diseases, of which consumption, pneumonia, typhoid, diphtheria, and the affections incident to old age may be mentioned, are also considered. The pamphlet closes with certain statistical statements regarding the expectation of life in some of our larger cities and in a few states. Our final dependence in wide generalizations must ultimately be in accurate statistical reports following a uniform system. Any effort in this direction is certainly to be welcomed; Dr. Billings' discussion must be regarded in this light.

MEDICAL NOTES.

Not Vaccinated: Unprotected. — Of the thirty cases of smallpox discovered in Chicago during the week ending Oct. 22, twenty-seven had never been vaccinated at all, and the three exceptions had never been revaccinated.

The American Journal of Urology. — A number of the members of the American Urological Association have undertaken to publish *The American Journal of Urology*, the first number of which, a very presentable pamphlet, is before us. This periodical will be issued monthly from the Grafton Press, and will be edited by Henry G. Spooner, M.D.

Deanship of Medical Department, Columbia University. — Dr. S. W. Lambert, professor of applied therapeutics in the medical department of Columbia University, has been appointed to the position of dean of that institution. Dr. Lambert becomes through this appointment an ex-officio member of the Columbia University Council, of the Board of Trustees of the Roosevelt Hospital and of the Boards of Managers of Sloane Maternity Hospital and of the Vanderbilt Clinic.

Fifteenth Annual Congress of Medicine. — We have received the second and the third numbers of the *Journal of the XVth International Congress of Medicine* — Lisbon, 1906. They contain the report of the actual affairs and the most important resolutions of the Central Committee. It is to be pointed out that a Colonial Exposition will be organized at the time of the Congress and also an inquiry regarding pellagra in Portugal, an enterprise undertaken by the section of psychiatry. In the two numbers there is a list of the subjects of official reports with the names of the authors who have accepted the work. In every section, there is also a list of recommended subjects for communications. Lastly, the *Journal* publishes the list of the national committees of the several countries where they are already constituted.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon Nov. 2, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 50, scarlatina 15, typhoid fever 18, measles 5, smallpox 0.

Free Distribution of Vaccine Lymph. — The State Board of Health has begun the distribution of vaccine virus free of charge in accordance with the act of the legislature of 1903. Circulars have been sent out stating the conditions under which the lymph is obtainable, to boards of health throughout the state as well as to the physicians, hospitals and dispensaries in Boston. The Board of Health prints certain rules and suggestions in sending out the virus.

Boston Mortality Statistics. — The number of deaths reported to the Board of Health for the week ending October 29, was 197, as against 159 the corresponding week last year, showing an increase of 38 deaths, and making the death-rate for the week 16.73. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 67 cases, 5 deaths; scarlatina, 18 cases, no deaths; typhoid fever, 27 cases, 4 deaths; measles, 6 cases, no deaths; tuberculosis, 46 cases, 23 deaths; smallpox, no cases, no deaths. The deaths from pneumonia were 21, whooping cough none, heart disease 19, bronchitis 8, marasmus 7. There were 9 deaths from violent causes. The number of children who died under one year was 47; under five years, 55; persons over sixty years, 37; deaths in public institutions, 57.

A Free Dental Service at the Homes of the Sick Poor. — Dr. Eugene H. Smith, its dean, informs us that the Dental School of Harvard University has recently organized its free dental service at the homes of the sick poor so as to be of greater efficiency than heretofore. The Dental School is now prepared to send a dentist who is a graduate of the school and registered by the State

Board of Registration, to the homes of the sick poor or to hospitals for the purpose of relieving pain originating from the teeth. This service does not extend to the filling of teeth or making of plates for artificial teeth. Its object is simply the relief of pain; a more extended treatment of the teeth being postponed until the patient may have recovered, and can visit the infirmary of the school. The service here described can be obtained by telephoning the Harvard Dental School, North Grove Street, Boston, or by letter.

NEW YORK.

ANNUAL MEETING MEDICAL SOCIETY, COUNTY NEW YORK. — The ninety-ninth annual meeting of the Medical Society of the County of New York was held on October 24. The following officers were elected: President, Dr. Henry S. Stearns; vice-presidents, Drs. Floyd M. Crandall and Walter Lester Carr; secretary, Dr. John Van Doren Young; assistant secretary, Dr. Edmund P. Fowler; treasurer, Dr. Charles H. Richardson; censors, Drs. Wendell C. Phillips, H. Seymour Houghton, William H. Park, Joseph Brettauer and Egbert Le Fevre. In his report, Champe S. Andrews, counsel to the society, stated that during the past year particular attention had been paid to quacks who tried to evade the medical law on the ground that they administer no drugs. While there was at present no definition of what constitutes the practice of medicine in New York State, he said there was reason to hope that during the coming session of the legislature such a definition would be incorporated in the statutes. Of a large number of cases successfully prosecuted during the year, he cited five convictions obtained in the Court of Special Sessions for quacks who prescribed massage, electricity, water cure, etc. One of the most gratifying of these was the conviction of "Professor" Sheffield, who claimed that "natural magnetism oozed from every pore of his body." Mr. Andrews also made the recommendation that a movement should be inaugurated to secure the regulation of medical advertisements in New York State similar to that recently enacted in Michigan. In the report of the Committee on Hygiene, presented by the chairman, Dr. C. H. Richardson, it was recommended that every package of wood alcohol should be labeled "poison." The committee also called attention to the danger to the community of the formation of the drug habit from the common use of catarrh cures and other nostrums containing large quantities of cocaine.

MEETING OF MANAGERS OF THE SOCIETY OF ST. LUKE'S HOSPITAL. — The annual meeting of the board of managers of the Society of St. Luke's Hospital was held at the hospital on St. Luke's day, Oct. 18. During the year, 76,493 days of treatment were given, of which 55,746 were to non-paying patients. Two thousand nine hundred and ninety-two patients were treated in the hospital, and 31,115 in the out-patient department. It was stated that four wards in the hospital were vacant on account of an insufficient income for their support, and that the deficit of the institution was now $17,235, and rapidly increasing. Numerous gifts were announced, including $10,000 from relatives of the late Dr. Guy B. Miller, $7,500 for a bed from Mrs. Mary E. Miller and Miss Louise Easton, and $7,500 each, for beds, from Mrs. Anna Wright and Mrs. William R. Coughtry.

Obituaries.

SAMUEL W. ABBOTT, M.D.

DR. SAMUEL WARREN ABBOTT, Secretary of the Massachusetts Board of Health, died suddenly at his home in Newton Saturday morning, Oct. 22. He was born in Woburn, June 12, 1837. He attended the high school there and then went to Brown University at Providence where he graduated in 1858. He graduated from the Harvard Medical School in 1862. Soon after the outbreak of the Civil War he entered the navy as an assistant surgeon and served until 1864. He saw some active service in the navy, notably on the Monitor "Catskill," but his desire for still more activity led him to seek a transfer to the army. He resigned from the navy and was appointed as surgeon to the First Massachusetts Cavalry; in connection with this regiment he was actively engaged until the end of the war. He then returned to Woburn and practised his profession there from 1865 until 1869. From there he moved to Wakefield, where he continued to live until 1902, when he moved to Newton.

He was coroner of Middlesex County from 1872 to 1877, then was appointed medical examiner and served as such until 1884. He was appointed health officer of the combined Boards of Health, Lunacy and Charity in 1882, and continued his faithful and acceptable services in this position until the Board of Health was restored to its previous solidarity when he became secretary and held this position until the time of his death, twenty-two years in all.

In his earlier years as a practitioner Dr. Abbott took much interest in surgery, and in working out some questions which have later claimed from others more and more study. Smallpox and vaccination always interested him deeply; at one time he conducted a small vaccine farm in connection with his practice. He wrote much

and serviceably on these and kindred subjects. Almost the last thing he wrote was an editorial on "Smallpox Infection from Isolation Hospitals," for the issue of this JOURNAL of Oct. 20. He was an advocate of the law for supplanting the old coroners by the present system of medical examiners, and discharged the responsible duties of a medical examiner for seven years. For five years, from 1886 to 1890 inclusive, he edited the Massachusetts Registration Reports of Births, Marriages and Deaths, prepared under the direction of the secretary of the Commonwealth. His immediate predecessors in the preparation of these reports were Drs. Charles F. Folsom and George Derby. These reports, through all these and the still earlier years, were regarded as models in other states and in foreign countries.

Dr. Abbott contributed frequently to the Transactions of the American Public Health Association; valuable and important articles for Woods' Reference Handbook of the Medical Sciences; for Gould's Year Book; reports on progress in matters connected with hygiene and public health and instructive editorials on kindred subjects for this JOURNAL. The reports of the Massachusetts Board of Health through many years are a monument to his industry.

But notwithstanding all these varied interests Dr. Abbott's real passion was for statistics. He was a born statistician, minute, painstaking, accurate, tireless and honest. It will be no easy matter to fill satisfactorily the place which he occupied in the medical community and in the service of the state. He was a member of the Massachusetts Medical Society, the American Medical Association, the American Public Health Association, the American Statistical Association, the Loyal Legion, the Royal Statistical Society of Great Britain, the Société Francaise d'Hygiene.

As a man Dr. Abbott was singularly modest, simple and retiring, and commanded the respect of all who knew him. He leaves a widow, a son, and daughters.

WILLIAM WOTKYNS SEYMOUR, M.D.

DR. WILLIAM WOTKYNS SEYMOUR, A.B., Yale '75, M.D., Harvard '78, died at his home in Troy, N. Y., Oct. 18, 1904.

After serving eighteen months as a house officer at the Boston City Hospital and spending a year in post-graduate study in England and on the Continent, he commenced the practice of medicine and surgery at his home in Troy, N. Y., making the third generation of his family to follow that profession in Troy. He held for some years the chair of midwifery and gynecology in the University of Vermont, and up to the time of his death was chief surgeon at the Samaritan Hospital, Troy.

In his younger days he was a prominent athlete, excelling in boxing and rowing.

Dr. Seymour was known principally for his work in gallstone surgery, and he was one of the first surgeons in the United States to operate successfully in this field. His translation of Kehr's classical work on "Gallstone Disease" is well known. He was a member of the American Medical Association, British Medical Association, American Association of Obstetricians and Gynecologists, of the New York State Medical Association and New York State Medical Society.

Dr. Seymour leaves a widow and two daughters.

Correspondence.

FOURTH PAN-AMERICAN MEDICAL CONGRESS.

NEW YORK, Oct. 25, 1904.

MR. EDITOR: The Fourth Pan-American Medical Congress, which will convene in Panama the first week in January next, bids fair to be a most delightful midwinter trip. The delegates will leave this country by the Atlantic, Pacific and Gulf coasts the last week in December. They will return by the same routes, or will make round trips.

The Public Health Association meeting will take place on the following week in Havana, and those desirous of attending both meetings can arrange to do so.

There are two routes for the physicians to take from Panama to Havana. The first is by way of Jamaica to Santiago de Cuba by boat and overland by rail to Havana. The second is by water from Panama to Vera Cruz, and from there to Havana. The former will probably be the most pleasant trip.

From Havana, the return trip can be made directly north to New York by water, or via Miami or Tampa, Florida, or New Orleans. The connections and dates of sailing are now being arranged.

The Panamanian government has appropriated $25,000 for the Scientific Session and the entertainment. The Congress will be held from the second to the sixth of January. The afternoons will be devoted to the Scientific Sessions and the mornings and evenings to trips and social functions. So far as can be learned, the program in Panama will be a reception on the first day, by President Amador of the Panama Republic, and the formal opening session of the Congress the same evening. On the second day, an excursion to the Canal in the morning, meeting of the various sections in the afternoon, and a banquet in the evening; on the third day, an excursion down the Bay to Taboga Island, where a Panama breakfast will be served, scientific sessions in the afternoon, and a ball in the evening. On the fourth day, an excursion to the U. S. Army barracks in the morning, section meetings in the afternoon and the formal closing session in the evening. On the fifth day, an excursion to the plantation of the United Fruit Company, and on the afternoon of this day, those of the "congresistas" who intend going to Cuba to attend the meeting of the Public Health Association will sail for Jamaica, while those who intend going by way of Vera Cruz, or returning home by way of New Orleans or New York, will remain until the following Tuesday.

The Secretaries of the sections of the Congress for the United States are Drs. A. H. Doty, of New York, hygiene and quarantine; Judson Daland, of Philadelphia, medicine; R. Matas, of New Orleans, general surgery; Bert Ellis, of Los Angeles, eye; Hudson Makuen, of Philadelphia, throat; Frederick Jack, of Boston, ear; C. H. Hughes, of St. Louis, nervous diseases; George Goodfellow, of San Francisco, military surgery; John Ridlon, of Chicago, orthopedic surgery; D. W. Montgomery, of San Francisco, dermatology; C. G. Kerley, of New York, pediatrics; Noble P. Barnes, of Washington, therapeutics; Walter G. Chase, of Boston, pathology.

Communications from physicians in the United States interested in these branches can be sent directly to these different secretaries. Delegates intending to attend the Congress, desirous of obtaining information concerning it, should communicate with the Secretary of the International Executive Committee in the United States.

RAMON GUITERAS, M.D.,
75 West 55th St., New York City.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 22, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Diarrheal Diseases.
New York . .	3,908,644	1,193	365	26.57	14.41	2.51	1.42	7.54
Chicago . . .	2,021,086	462	107	28.78	6.71	2.81	1.08	10.38
Philadelphia	1,407,968	380	55	26.31	10.79	2.89	2.63	7.36
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	160	32	27.50	5.62	1.87	2.50	5.00
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	409,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	106	—	27.36	18.87	2.83	3.77	10.38
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	65	14	15.38	18.45	—	1.53	3.07
Boston . . .	617,950	192	49	23.43	12.50	2.08	2.60	6.25
Worcester . .	136,925	32	12	9.37	6.25	—	—	6.25
Fall River . .	119,349	30	13	23.33	16.67	—	—	16.67
Lowell . . .	104,402	33	11	18.18	12.12	3.03	3.03	—
Cambridge .	100,998	30	8	10.00	—	—	—	—
Lynn	73,875	20	3	10.00	—	—	—	5.00
Lawrence . .	72,348	19	7	15.79	5.26	—	—	5.26
Springfield .	72,020	16	3	12.50	6.25	—	—	—
Somerville .	70,413	17	1	17.65	—	—	—	—
New Bedford	68,863	29	11	17.24	10 34	3.45	3.45	—
Holyoke . . .	50,538	20	6	15.00	20.00	—	—	5.00
Brockton . .	46,601	10	2	20.00	—	—	—	—
Newton . . .	39,310	8	—	12.50	—	—	—	—
Haverhill . .	39,061	9	1	33.33	—	—	—	—
Malden . . .	37,205	5	2	20.00	—	—	—	—
Salem	37,188	8	1	25.00	—	—	—	—
Chelsea . . .	36,499	11	2	27.27	—	—	—	18.18
Fitchburg . .	36,335	7	1	14.30	14.30	—	—	—
Taunton . . .	34,577	18	—	22.22	5.55	—	—	5.55
Everett . . .	30,209	5	3	40.00	—	—	—	—
North Adams	29,201	—	—	—	—	—	—	—
Quincy . . .	26,798	6	—	—	16.67	—	—	—
Gloucester .	26,121	—	—	—	—	—	—	—
Waltham . .	25,797	6	1	—	16.67	—	—	—
Brookline . .	25,576	8	1	—	—	—	—	—
Pittsfield . .	22,870	4	1	—	—	—	—	—
Medford . .	21,956	3	—	—	—	—	—	—
Chicopee . .	21,692	3	0	66.67	—	—	—	—
Northampton	20,314	2	0	—	—	—	—	—
Beverly . . .	15,807	3	—	33.33	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	4	0	25.00	25.00	—	—	—
Adams . . .	14,745	4	2	50.00	25.00	25.00	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	0	—	—	—	—	—	—
Newburyport	14,478	6	0	—	16.67	—	—	—
Woburn . . .	14,315	2	1	—	—	—	—	—
Melrose . . .	13,819	4	1	—	—	—	—	—
Westfield . .	13,809	3	1	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	4	0	50.00	—	—	25.00	—
Revere	13,609	2	—	—	50.00	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,324	4	3	25.00	—	—	—	25.00
Southbridge .	11,716	1	1	100.00	—	100.00	—	—
Watertown .	11,575	4	1	—	25.00	—	—	—
Weymouth . .	11,350	5	0	20.00	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 2,963; under five years of age, 1,222; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 745; acute lung diseases 338, consumption 344, scarlet fever 11, whooping cough 10, cerebrospinal meningitis 20, smallpox 3, erysipelas 5, puerperal fever 10, measles 8, typhoid fever 49, diarrheal diseases 214, diphtheria and croup 68.

From whooping cough, New York 3, Chicago 2, Pittsburg 2, Providence 1, Boston 1, Lawrence 1. From measles, New York 3, Pittsburg 3, Boston 1, Malden 1. From scarlet fever, New York 7, Chicago 2, Philadelphia 1, Pittsburg 1. From cerebrospinal meningitis, New York 18, Brockton 1, Weymouth 1. From erysipelas, New York, Chicago, Philadelphia, Providence and Clinton 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Oct. 8, the death-rate was 15.1. Deaths reported 4,421; acute diseases of the respiratory organs (London) 85, whooping cough 39, diphtheria 66, measles 62, smallpox 4, scarlet fever 32.

The death-rate ranged from 2.6 in Hornsey to 24.4 in Salford; London 13.9, West Ham 14.3, Brighton 14.0, Plymouth 14.6, Bristol 13.4, Birmingham 16.1, Leicester 11.2, Nottingham 13.2, Liverpool 20.7, Bolton 14.2, Manchester 19.7, Oldham 17.9, Halifax 14.1, Bradford 16.1, Leeds 14.0, Sheffield 13.9, Hull 19.3, Cardiff 12.7, Rhondda 12.4, Merthyr Tydfil 16.5, St. Helen's 17.7.

METEOROLOGICAL RECORD.

For the week ending October 22, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. 16	30.20	53	68	38	48	50	49	W	W	10	5	C.	C.	0
M. 17	30.10	60	74	47	39	30	34	W	W	8	14	C.	C.	0
T. 18	30.00	61	72	50	35	87	61	W	N	8	11	C.	C.	T.
W. 19	30.16	52	54	49	86	94	90	N E	N E	8	6	O.	O.	0
T. 20	30.06	60	68	52	91	87	89	E	S	6	10	O.	C.	T.
F. 21	29.72	60	68	52	90	76	83	S E	W	20	15	O.	O.	.63
S. 22	29.75	57	67	47	63	56	60	S	S W	8	12	C.	F.	0
☞	30.00		67	48			67							.63

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

SOCIETY NOTICES.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1905, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published, and must be received by the Secretary of the College on or before May 1, 1905. The Alvarenga Prize for 1904 was not awarded, no essay of sufficient merit, in the judgment of the committee, having been submitted in competition.

THOMAS R. NEILSON, M.D., Secretary.

BOSTON MEDICAL LIBRARY MEETINGS.—The Boston Medical Library in conjunction with the Suffolk District Branch of the Massachusetts Medical Society, will hold the following meetings during the season of 1904–5, at 8.15, at the Fenway: Nov. 16, Nephritis: Pathology, Prof. W. T. Councilman. Clinical Examination of Urine, Prof. E. S. Wood. Diagnosis, Dr. Richard C. Cabot. Nov. 30, Ptosis of the Abdominal Organs with Special Reference to the Kidney: Discussion. Dec. 7, The Humane Treatment of Malignant Disease from a Surgical Point of View, Dr. John C. Munro. Dec. 21, Nephritis: Medical Treatment, Prof. F. Pfuff. Surgical Treatment, Dr. Paul Thorndike. Prognosis, Dr. Frank Wells. Jan. 4, General Treatment of Appendicitis: Discussion. Jan. 11, Medical Charity, Dr. Geo. W. Gay. Jan. 25, A Study of Objective Methods of Diagnosis of the Stomach in a Medico-Surgical Clinic with Report of Cases, Dr. H. F. Hewes. Results of Surgical Treatment of Benign Disease of the Stomach, Dr. J. G. Mumford. Feb. 1, Results of Operative Treatment of Cancer in and about the Mouth: Discussion. Feb. 11, Physiological Economy of Nutrition, Prof. R. H. Chittenden, New Haven. Feb. 15, Recent Work on Etiology of Disease, Prof. W. T. Councilman. March 1, The Surgery of Renal and Ureteral Calculi: Discussion. March 8, The Present State of Opinion Concerning Sewer Gas and its Effects, Prof. Wm. T. Sedgwick. Nine Years' Experience in the Treatment of Diphtheria with Antitoxin at the South Department of the Boston City Hospital, Dr. John H. McCollom. March 11, Open. April 5, Cerebral and Spinal Surgery: Discussion. Notification of each meeting will be given in the BOSTON MEDICAL AND SURGICAL JOURNAL; those who wish a special notification by postal card will please notify Dr. Brigham at the Library. Light refreshments will be served at each meeting.

GEORGE W. GAY, FRED. B. LUND, ELLIOTT P. JOSLIN,
Committee on Medical and Social Meetings.

RECENT DEATHS.

WM. WOTKYNS SEYMOUR, M.D., died suddenly in Troy, N. Y., Oct. 18, 1904.

JOSEPH RUTTER DRAPER, M.D., M.M.S.S., died in Westford, Oct. 30, 1904, aged forty-two years.

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheater of the Boston City Hospital on Nov. 4, from 10 A.M. until 12.30 P.M.: Bursitis of Knee; Carcinoma of Breast; Exploratory Laparotomy; Inguinal Hernia.

Address.

TUBERCULOSIS, ITS NATURE AND PREVENTION.*

BY HENRY BARTON JACOBS, M.D., BALTIMORE, MD.

In the early years of the nineteenth century, corresponding to those in which we are now living in the twentieth, there was being waged one of the most notable wars against disease and death which can be found in history. The scourge of smallpox had held its devastating sway almost unchecked through the centuries. The people, accustomed to its presence, looked upon it as inevitable, and so, silently and sadly, gave up to its demands a full tithe of victims, while more than another tithe bore uncomplainingly the ugly marks of its visitation. Jenner's discovery of vaccination at the end of the eighteenth century opened new hopes. The glad tidings spread to all countries. Benjamin Waterhouse brought the word to Boston in 1800–2, and in the years that followed, 1803–4–5, the medical profession, the world over, waged its war upon the great scourge, instructing the ignorant, showing the way, and in twenty years, or even less, smallpox as a great international plague had ceased to be.

Now much the same thing is going on in these early years of the twentieth century. The great men of the end of the last century, Villemin, Pasteur, Koch, have shown what this disease, tuberculosis or consumption, is, and they and others have shown how it may cease to be the great devastating plague of our day. It but remains for the people to learn of it, to understand it, and then to use the right means of stamping it out forever.

To this end associations are being formed everywhere to carry on the educational and relief work, and I congratulate the citizens of Newport that they are not behind in this movement. Recently a national association was formed with the object of affiliating local societies, binding them into one great organic whole, so that the problems to be attacked, the work to be done, could be approached by a solid, united body, irresistible in strength and devotion.

In a simple way and rather briefly I want to tell you: 1, What tuberculosis is; 2, How it is acquired and fostered: 3, How it can be avoided or prevented; 4, How it can be cured; 5, and lastly, What I conceive to be the duties of the citizens of Newport in regard to stamping out the disease from this community.

The subject has been so frequently discussed in the past year or two that there are few who have not heard that tuberculosis, like diphtheria and typhoid fever, is a germ disease; but to many this term conveys little. I shall try to explain in homely language what is meant. You all know that, if you were to put a loaf of cake in a damp corner of a dark cellar, it would not be many days before that cake would be covered with a fine growth of blue mold and that the cake would be more or less spoiled. Now this mold would come upon the cake because in the damp air of the cellar there were the invisible germs or seeds or spores of the mold, which can only be seen with a microscope. They settled upon the loaf and found it good soil upon which to grow, for mold like grass or flowers is a species of plant life, though very low down in the scale. No mold can grow unless there are mold seeds or germs, any more than can grass or flowers grow without seeds.

The mold in growing on the cake changed it from good cake to bad, made it sick, if you like, and if allowed to go on may even make it decay.

Now the growth of the mold is almost analogous to the growth of the germs of tuberculosis. They, too, are invisible to the naked eye but, if we catch them in a glass tube or a glass flask in which there has been placed some substance like beef juice or milk, upon which they like to grow, we see after a day or two a growth similar to a mold, not blue but white, and as this tuberculosis mold continues to grow it changes the beef juice or milk somewhat as the cake is changed. I will show you a picture of this mold growing. If now we take some of this growth, spread it out on a small piece of flat glass and put it under the microscope, we are able to see the individual germs or the seed of this tuberculosis growth or mold. They are very minute little rods which develop very rapidly indeed by lengthening and then splitting apart, each little fragment again lengthening and again breaking up. While doing this they nourish themselves upon the substance upon which they are growing and, like the mold upon the cake, they are spoiling that substance. You know molds have a preference in the substances upon which to grow. For instance, the germs of the blue mold, with which you are familiar, grow more quickly and more vigorously upon cake than upon bread perhaps. So with the germs of tuberculosis; they prefer animal substances, and especially the fluids and tissues of human beings, cows, calves, guinea pigs, etc. If then they gain admittance to the bodies of men or animals, they may grow there and change the tissues or fluids, so that the men or the animals become ill. This illness is the disease, tuberculosis, and when the tuberculosis becomes located in the lungs, it becomes consumption; without the germ there can be no disease. No matter how weak and debilitated the individual may be, he can never have tuberculosis or consumption until he takes into his body this definite specific germ, which produces by its growth the disease. You will see, then, if everybody could live in a place where there were no tuberculosis germs, nobody would ever have consumption.

Moreover, there is a farther consideration; namely, that when only a few germs get into a perfectly healthy body, the body has the means of battling with them and overcoming their growth; so that, if everybody kept his body perfectly sound and well and did not allow *many* tuberculosis germs to get in, he would stand a very favorable chance of never getting consump-

* Address before the Newport Association for the Relief and Prevention of Tuberculosis, August, 1904, illustrated with charts and lantern slide pictures.

tion. So that the great protection to every individual is in either never allowing germs to get into his body, or in so keeping his body in such health that if a few do get in they can be overcome without producing the disease.

As I have said, if the germs get into the lungs, they produce tuberculosis of the lungs, which may become consumption, for consumption is but the old and popular name for advanced tuberculosis of the lungs. If they get into the stomach and intestines, then it is tuberculosis of the intestines; if into the bones, then tuberculosis of the bones, which produces hunch-backs and the hip disease of children; if into the glands, especially the glands of the neck, then tuberculosis of the glands or scrofula; all these are due to the growth of this same germ, the germ of tuberculosis which has been named the *tubercle bacillus*.

I will speak to-night mainly of the tuberculosis of the lungs or consumption, for it is by far the most common form of tuberculosis. Indeed, a very large per cent of all our population dies every year from it. I will show you a diagrammatic picture of the lungs. You will see they are composed of air pipes, dividing and subdividing like the branches of an inverted tree, with little sacks at the tips corresponding to the leaves of the tree, where the real work of the lungs is performed, as it is in the trees. Sixteen or twenty times in every minute of our lives we expand our chests and take new air into these tubes. Whatever is in the air has a tendency to be drawn in, though if inhalation is made through the nose, some of the impurities are screened out by the intricate structure of that organ; so that breathing through the nose should always be encouraged. Indeed, one who thoroughly appreciated this fact some years ago wrote a very interesting little pamphlet, entitled "Shut your Mouth and Save your Life,"[1] and there is not altogether such exaggeration in the title as might at first be supposed. Sixteen or twenty times every minute we take air into the lungs and, if we happen to be living or working in an atmosphere in which there are germs of tuberculosis afloat, they are carried to some of these little sacks and may find lodgment and grow. The tissues try to expel them or to overcome them, and so set up an active growth and hem them in, forming tiny little nodules or tubercles from which the word, tuberculosis, takes its name.

In very many instances, if the body is strong and well, the tissues do overcome the growth of the germ, and after a time the little tubercle heals and disappears, leaving only a minute scar behind. But in less favorable individuals the germ gets the upper hand, grows and multiplies. The cells of the center of the tubercle are overcome, their character is changed, somewhat in the same way that the mold changes the character of the cake. These cells die, soften and break down, and soon a small cavity exists. This increases in size and reaches the surface of the air tube. The irritation of its presence makes the patient cough, and, as he coughs, he spits out the contents of this cavity, contents which consist for the most part of germs and the broken-down tissue of the lung. Every time then that the consumptive coughs and spits he is likely to throw out a mass of these infectious germs, which have the power of producing the disease in a new individual if they are breathed in before they have lost their vitality.

Tuberculosis, therefore, is merely the growth within the body of the tubercle bacillus in great numbers, which so destroys the tissues and poisons the system by its presence and by its products that the individual becomes ill, loses weight and strength and finally, unless the growth is checked, dies.

If we were never exposed to the possibility of taking in the germ, we would never suffer the disease. The question then is, How can we limit the possibility of infection — how can we diminish the germ supply? As all the germs must come from some person or some animal already infected, if we can so arrange it that they cast off no germs which others can take, then we cut off the supply at once. The person with consumption who is careless where he spits is the greatest danger we encounter. We rarely are in danger from the fresh moist spittle, for so long as the spit is moist the germs are held and they cannot fly about in the air, but so soon as the spit dries and becomes a powder the germs are blown about by every whiff of wind and may easily be inhaled. Dried spit, then, is one of the most frequent sources from which tuberculosis is acquired. In the open air and in the sunlight this danger is not great, for after some hours' exposure to sunlight the germ loses its vitality; but within doors, away from light and pure air, the life of the germ is greatly prolonged. Thus the real danger of acquiring the disease is in being exposed, either in the work shop or house or schoolroom, to the dust which arises from the dried sputum or spit of a fellow workman or student or invalid member of the family. And as the carelessness of that infected one increases, so increases the danger of transmission; or, on the other hand, as light and fresh air are excluded, so is the danger of the germ increased. It is then among the ignorant poor, working in factories or sweat shops and living in dark, often damp, unventilated houses, that we should expect to find the greatest contagiousness; and the facts bear out completely this supposition. Nowhere is tuberculosis more transmissible, nowhere is the contagiousness greater, than among the poor and ignorant immigrants who live in the poor tenements on the East Side of New York.

I will show you a map of what is known as the Lung Block and a few pictures of the kind of houses composing this block. The more the method of acquiring the disease is studied the more convincing it becomes that tuberculosis, especially tuberculosis of the lungs, is a house disease, a house infection from the germs lodging in the dark corners. Patients afflicted, therefore, should always be careful not to cough

[1] "Shut your Mouth and Save your Life," by George Catlin, Health Publishing Co., Boston, Mass., 1890.

without holding something before the mouth, for fine sprays containing germs are thrown out during cough; and they should be careful never to expectorate except into paper or cloth which may be burned, or into some form of spittoon which may contain carbolic acid or some other substance sufficiently strong to kill the germs. I have pictures of various such spittoons.

The careful consumptive patient should be no menace whatever to his family or friends. He simply takes the proper precautions not to let his germs become scattered about where others may breathe them.

Absolute cleanliness of person and of room, as is carried out in all well-regulated santoria, not only makes living with the consumptive without danger but insures less risk from taking the disease than in any other place, for there all the germs are killed and there are none left for others to breathe.

I have already said that, if the body is kept in perfect physical condition, it has the power of resisting to a great extent the inroads of the germs; but there are all sorts of conditions which prevent the body from being kept in this perfect condition. And among these conditions which reduce the resistance of the body we may mention conditions of birth, habits, occupation.

All persons are not *born* with the same strong constitutions. Therefore, the weak are all the more likely when exposed to the disease to take it from lack of resistance. Any *habit* which impairs our vigor is also a predisposing cause to consumption, and no habit is more potent in this particular than the immoderate use of alcohol. Certain *occupations*, too, are most important factors in reducing the resistant strength of individuals. All indoor workers are more prone to the infection than out-of-door workers. Benjamin Rush, over a century ago, noted that consumption was almost unknown among the American Indians and the early settlers of this country. And the farmers and lumbermen are to-day perhaps the most immune class. Those occupations in which the workman is subjected to much irritating dust are particularly dangerous; so in general it may be said that whatever reduces the resistance of the body fosters consumption.

There are, moreover, *racial* tendencies to consumption. The negro race, of all peoples of which we know, is most prone to the disease. The relative mortality of whites and colored in Maryland show this very well. And this great increase in the susceptibility of the negro cannot alone be accounted for by conditions of ignorance and lack of hygienic laws, and can only be explained by assuming that in the evolution of the race it has not acquired the same powers of resistance or immunity to the germ of tuberculosis, that has been acquired by some of the white peoples. The Irish or Celtic race is also prone to tuberculosis. The statistics gathered by Mr. Frederick Hoffman, the actuary of the Prudential Insurance Company of New Jersey, are most interesting and somewhat alarming to the young of Irish origin. They show that this race, together with the colored, should be particularly careful neither to be exposed to the tuberculous nor to allow their good health to become impaired to such extent that their resistant powers are diminished. Of all peoples the Jews are least susceptible; though under conditions of great poverty and bad housing, conditions in which many of the poor Russian Jews are living in our cities, they too may show an unusual proneness. To what is due the remarkable racial immunity of the Jews is unknown, but may possibly be explained as due to an acquired resistance through the centuries of struggle of this race.

All measures which the individual or municipality may take to prevent the propagation of the germs and in removing predisposing or fostering causes tends to prevent the dissemination of the disease. Anti-spitting laws, notification laws, fumigation laws, laws in regard to hygienic measures, laws in regard to tenements, workshops, schoolhouses, etc., are the measures we must employ, with general education of the people in the nature of the disease, how it may be spread and how avoided and prevented. Placards may be displayed, leaflets distributed, lectures given, etc., etc.

I have said nothing about the danger of taking the disease from animals, particularly from cows, but there can be no doubt, I think, that there is danger in this direction. None of us, I am sure, is willing under our present knowledge to eat tuberculous meat or drink tuberculous milk, and the laws for the slaughter of all tuberculous cattle are wise and should be rigidly enforced. Evidence seems to point to the fact that children are particularly likely to be infected by the milk of tuberculous cows which almost invariably contains the germs of tuberculosis. The intestine of the child seems to allow these germs to penetrate its wall more readily than that of an adult, so it is most important that pure milk be supplied to the young.

A few words now about the cure of tuberculosis, and here I want to encourage hope to the greatest degree. The old idea that consumption was a hopeless disease has definitely been proven to be false. You will be surprised, if you do not already know, the very large per cent of cases when treated properly from the start that recover. The annual reports from the various sanatoria and out-of-door camps, from all over this country and Europe, substantiate entirely this statement; and the remarkable thing about these reports is that they all agree so closely, whether the sanatorium be that of Sharon, situated a few miles out of Boston at an altitude of only 200 feet above sea level, or that of Saranac in the Adirondack Mountains, 3,000 feet, or in Colorado, 7,000 feet, or again those in various parts of England, France, Germany or Switzerland; the relative proportion of the number of cases sent home well is almost identically the same.

This shows conclusively that it is not so much a question of the situation of the sanatorium, not

so much a question of altitude, as a question of method of treatment; and the methods pursued now in all well-conducted sanatoria are practically the same. So it is to the method and not to the particular climate to which credit must be given.

A brief description of this method will show you the course to be followed by every consumptive, whether treated at home or in a sanatorium. The very first move is to see that he ceases to be a danger to those who are to take care of him or to visit him. He must therefore be provided with spit cups or paper napkins into which he can always spit, whether at home or on the street. Pocket flasks have been devised which are useful, and rubber-lined pockets into which paper napkins can be put are also useful. When in the house, small hand spittoons with paper linings which can be taken out and burned are cheap and serviceable — the point is that no consumptive should ever spit into any receptacle which cannot either be burned or sterilized by carbolic acid, boiling water or some such means. In coughing the patient should be taught to hold before his mouth a paper napkin so that the minute spray from his mouth may neither be a direct menace to those about him nor an indirect one through the drying of this spray and its becoming scattered in the dust of the house. Studies in the past few years warrant the statement that the invisible spray from the mouth of the speaking or coughing consumptive is a more dangerous source of the direct transmission of the disease than has heretofore been supposed. This spray, somewhat as from the mouth of an atomizer, can be carried fully four feet, and anyone breathing the air within that distance may inhale the active germs contained in the minute particles of moisture. The bed linen, the personal linen, clothes, even the carpets and hangings of the room where the consumptive sleeps, should be capable of frequent sterilization.

The patient himself must next be considered, and the measures adopted to insure his recovery should be directed to at least three points. First, to insure to the individual the greatest amount of fresh air possible; second, to insure to the individual the greatest amount of food which can be properly digested; and third, to inaugurate such manner of life that the forces of the body shall be exhausted as little as possible, while keeping up good moral tone and good digestion.

Drugs are of no avail, but the services of the physician are indispensable; he must plan the treatment and must see that it is carried out, and herein almost alone lies the advantage of the sanatorium over the home for the treatment of consumption. Patients at home will occasionally disobey their doctors; they see friends who tell them that this or that thing would be better for them; and he is a very strong-minded person who will not, sooner or later, yield to friends' importunities, which are always offered with such good motives but which are usually so bad for the patient.

First, then, the maximum amount of fresh air; from morning till night and from night till morning in the open air, winter or summer. If the disease be advanced and there is fever, then entire rest in a reclining chair or in bed in the open air. If the disease is very early and the patient is able to work, then work must be as far as possible in the open air, and the whole night should be given up to sleep in the open air, either out of doors with the open heavens above, on a porch or in a room with all windows raised. I have pictures of patients at rest in suitable open-air pavilions which I will show you; also pictures of houses with porch or veranda for open-air sleeping. The consumptives of Newport need not go away to find these things. Nearly every house in town has at least a pleasant back yard or garden, in which on a porch or under an awning they might spend their time while coming back to health and strength.

Secondly, the patient should have the maximum amount of food which can be properly digested, and to this end it seems wise to encourage the drinking of milk and raw eggs between the regular meals and before going to bed at night. In this way patients frequently take as much as two quarts of milk and a dozen eggs a day in addition to three hearty meals.

The third consideration calls for such manner of life that the forces of the body are well preserved, and so reserved for the battle against the disease. Heavy work is undesirable; indeed, severe exercise of any kind is bad. The patient should not become fatigued, but in the early stages, when without fever, he may be allowed light work or exercise which will keep up a zest in life and aid in preserving good digestion. If there be fever, then all exercise must cease and the patient keep either to a reclining chair or to the bed, until it shall have disappeared.

No medicines are necessary in the great majority of cases. Indeed, Dr. Trudeau tells me that one of the worst features he has to contend with is, that patients come to him with their digestive powers so broken down by prolonged dosing with creosote that their stomachs never recover, and therefore their powers for fighting the disease are so crippled that they never have a fair chance. The amount of harm done by the advertised quack medicine cures cannot be estimated, for it is through the early months of the disease when there is hope of recovery that the patient trusts to these false methods, fearing perhaps to consult a physician, and so loses the chance of recovery.

Under the manner of treatment which I have so imperfectly outlined, of the very early cases sent to sanatoria or treated at home in the same way, eighty to ninety per cent recover; of the more advanced cases, thirty to fifty per cent recover; of the far advanced cases, perhaps ten per cent recover. Nothing could speak louder than do these figures for an early recognition of the disease and for immediate treatment in the proper way. The physician who holds on to a patient, encouraging him that this or that medi-

cine will cure him, not only commits an egregious error but an unpardonable sin from which there may be no reprieve.

So far, then, as the cure of consumption is concerned, the most important things are *early recognition* and *understanding of proper procedures.*

Now Newport is an ideal town for the complete subjugation of this disease. It is almost an isolated community in some respects, *i. e.*, it is surrounded by water on three sides, and upon the fourth is a wide stretch of beautifully lying, open farm lands. Its permanent population is not exceedingly dense. It is comfortably housed, well-to-do, and well educated for the most part. Moreover, it is very stable. There are no great inroads of ignorant poverty-stricken immigrants from the less civilized part of Europe, such as the large cities of the country have to contend with, a class which forms the very center of local infections, making such quarters as the Lung Block of New York possible. It has no great tenement houses, the worst breeding places of all sorts of disease. Its streets are clean, its sewerage system admirable, its climate remarkably even, the tendency to longevity much beyond that of most communities. Indeed, I have been struck by the fact that in the last report of its Board of Health there were 125 deaths of persons over sixty, or over 35% of all the deaths for the year. And of these 125 over sixty, there were 32 over eighty, nearly 10% of all deaths, which means that ten people out of every hundred born in Newport live to be over eighty. I doubt if you find a better record anywhere.

But now look at the havoc consumption played with the population in the year 1903. As I should have told you, the great majority of those dying of consumption are cut off in the vigorous years of life. Few die of this disease under fifteen and comparatively few over sixty. Now, on looking at the report of the Board of Health, there were 154 deaths in Newport of persons between five and sixty, and there were 31 deaths from consumption during the year, and seven or eight more from tuberculosis of other parts of the body. It is perhaps fair to assume that thirty of the consumptives were between five and sixty years old at the time of their death; so that one fifth of all those dying between five and sixty died of consumption. Think of it! One out of every five of the population who dies within the period of most usefulness — from the age of five to sixty — dies of consumption.

Such a condition is not worse here than it is everywhere else, but it is nevertheless startling. If it were smallpox or cholera that were so doubly decimating the population, every effort of city and state would be up in arms against it. The whole community would be aroused, and nothing else would be done until the epidemic had been checked. But this frightful death-rate from consumption goes on year after year, and we passively submit without it exciting hardly a momentary comment, and yet consumption is a preventable and a curable disease, just as surely as is smallpox. We need only be aroused to a knowledge of the methods of prevention and cure.

Ask yourselves, then, will you here in Newport any longer quietly sit by and let this useless destruction of young and valuable lives go on? That you are determined it shall not is shown by what you have already done. You have laws against spitting in public places; you have laws requiring the notification of all cases of the disease; you have powers granted your Board of Health to fumigate infected houses. You have a hospital dispensary where the poor may be treated and advice given. You now have formed a society to work in harmony with your health authorities for the relief and control of the disease. It seems to me, you are very fairly started to stamp it out from your midst. But there is yet much to be done. Let me enumerate some of the things.

First, the doctors of the town must bear the great brunt of the fight. And their prime duty is to see that no case of consumption escapes an early diagnosis. Nothing is so fatal to the success of treatment as failure of early recognition of the disease. It is in the first stages, and almost solely in the first stages, that we may expect any real hope of recovery, and so the failure on the part of any physician to make an early diagnosis militates just so much against the chances of that patient. To insure that early diagnosis the physician should feel himself called upon to bring to bear all possible means. It is by no means easy to surely say at the very first visit whether or not the patient has consumption, but, if there is the least doubt, if there is any question, resort should be made to repeated careful examinations of the sputum by expert microscopists and consultations with one's colleagues be called, so that within as short a time as possible the physician may be able definitely to say to his patient either that he has or he has not consumption. And if he has, it is far better all round to say so. The first shock to patient and friends may be very hard but the outcome is always better. The patient then understands he must not trifle with his complaint and will be likely to be all the more ready to follow suggestions for treatment.

The second great duty of the physician is in reference to the treatment. He must not encourage the belief that benefit will be gained by taking this or that prescription, a cough mixture or tonic, whether it be cod-liver oil, the hyperphosphites, or creosote. The time is too valuable to be given up to these procedures. Every day counts, and the only measures proven to be of real worth are those of which I have already spoken,— fresh air, food, rest, at home perhaps, on some farm, or better still in some sanatorium; but at any rate no delay, no trifling with drugs while the disease goes on from its incipient, hopeful stage to its advanced and less curable conditions.

The third duty of the physician is to report the case as one of tuberculosis to the health board.

You have a city law making provision for this, and it is one of the best provisions possible. No physician need have any hesitancy in doing so, no patient should object to it. The records of the Health Office are sacred and secret. In perhaps seven out of ten cases the mere notification is all that ever follows, but in the other three cases it may be wise for the board to take some action, either in relief, assistance or in fumigating the apartments after the patient shall have moved away, for no house in which a tuberculous patient has either lived or worked should go unfumigated. Nor should any new individual or family be allowed to move in until this is satisfactorily done.

Now these are among the most important duties of the physician. The duties of the citizens of Newport are not less important, though they be fewer in number. The most important of all is to see to it that the Board of Health and this society be supplied with funds by which the work can be carried on. The Board of Health needs to have in its employ a well-trained active young man, whose duty it shall be to examine for the tubercle bacillus every specimen of sputum submitted to him by any physician of the town. This young man needs a small laboratory, a microscope and a few chemical reagents. The whole thing won't cost over fifteen hundred dollars a year.

Secondly, the Board of Health needs funds for fumigating the houses of those too poor to properly have it done for themselves. No feature in the struggle against consumption is more important than that surely no second family, tenant or boarder should enter a house or a room in which has lived a consumptive, without its first having been scientifically and thoroughly fumigated.

This new society which has been organized to carry on the crusade needs generous encouragement and support. It wishes to spread knowledge of the necessity of prevention and cure by means of printed posters, leaflets, circulars; it needs to supply spit cups to those unable to buy them; it needs to employ a nurse to visit in the homes of the very poor who may be afflicted, a nurse who shall spread a knowledge of the best means of living, the best means of preventing other members of the family from catching the disease. The society needs money to supply proper food to these very poor. And farther, the society needs money with which to establish a small sanatorium upon one of the neighboring country hillsides, where young men and women, just in their very prime, who have suddenly found themselves attacked, may be sent with the great hope that a large majority of them by proper treatment may within four or six months come back to their families and to their work able to resume the duties of life, saved by this means alone from the early, sad ending of many a happy ambitious youth.

These are some of the duties of the citizens of Newport, physicians and laymen, which I would earnestly plead with you to undertake.

Original Articles.

THE IDEAL DOCTOR.

BY DAVID W. CHEEVER, M.D., BOSTON.

I SHALL define Altruism as "sacrificing self to others," and Egoism, as "sacrificing others to self." Although the precepts of Buddha, the maxims of Confucius, the writings of Cicero and Seneca inculcate sacrifices to friendship and brotherly love, yet it is certainly true that altruism and a wide charity date from the advent and teachings of Jesus Christ; general benevolence, the growth of hospitals, the sedulous care of cripples and weaklings, are distinctly Christian practices.

The term "Ideal Doctor" is not here limited by specialty or by general practice: it applies to all medical men.

WHAT is the best type of a doctor?

The relations between doctor and patient are so peculiar as to require a blending of altruism and egoism, of self-denial and self-assertion.

The physician must do all for the patient; he must put himself in his place; but, on the other hand, he must maintain and assert his own rights and his self-respect. He must be a gentleman; and being a gentleman he is at great disadvantage when dealing with patients of a commercial spirit. He cannot meet them in equal combat; they defeat him in practical business relations.

The doctor knows he ought to be paid for sincere and honest care of a case; the commercial patient judges by results, perhaps disputes claims, belittles services, has an absolute ignorance of the finer feelings of the physician.

The doctor puts himself in the patient's place; treats him as he would wish himself to be treated. The patient may, or may not, appreciate these services. If not, what remains for the doctor but egoism; a reasonable selfishness to protect his own interest?

Now here is the difficulty. If the relation of patient and doctor is to be wholly commercial, then the doctor may exaggerate the money value of what he does. In short, the professional spirit is sunk in a trade. Also the doctor may be *himself* commercial, and even avaricious. In this case he overcharges, exacts all he thinks the patient can pay. He evidently has not the professional spirit; he is making a trade; he is "in it for all it is worth." The results of these methods are twofold disastrous: First, on the doctor, leading to a contempt for small fees, for small cases, and for humble patients. Second, on the patient, leading to a general idea of the great cost and uncertain price of any sickness or emergency; thus driving him to quackery, to no treatment, or to gratuitous treatment in hospitals.

On the other hand, every doctor has to treat the poor for nothing. Here altruism is abused. For the vast expansion of hospitals, dispensaries and free clinics leads many to apply who could or ought to pay something to the doctor. The sliding scale of medical prices, which the varying worldly possessions of a community renders inevitable, fosters both the over-charge and the under-charge. It is thus plainly to be seen that the doctor is torn between too much sympathy, too much altruism, the fear of becoming commercial, or the danger of starving, himself.

What is the ideal doctor? He should be a gentleman above all. He should respect the rights and condone the prejudices of his patient. He should realize that it is idle to treat the body and neglect the mind. He should reflect that a sick body means a sick mind, and discount all that the sick say.

It is difficult for the healthy physician to appreciate the state of the patient's mind. Some are querulous, many are timid, many diffident and distrustful; all are tormented by phantoms of doubt and uncertainty. It is the doctor's part to reassure, to cheer, even to prevaricate, if necessary. We do not understand mental operations; we never shall. We coarsely study the mechanism and we fail to reach the motor. We can try, however; we should try; nothing does more good if we touch the right spring. The writer took one despairing, hysterical young woman out of bed, and cured her by his will power. He utterly failed in the next case. Here is where tact is as valuable to the doctor as professional knowledge.

The ideal doctor is sympathetic but not weak; he concedes, but he requires. The doctor is the confidant, adviser and friend of his patients. He knows all their secrets. He does not willingly betray them.

Pathology and not dollars should be the ideal doctor's first inquiry; caretaking, relief, his first duty. But to save himself from starvation he should have business tact.

Some people succeed, others do not; why is this? Business tact enables him to see chances; to trim to circumstances; not to oppose the inevitable; to accept defeat goodnaturedly; to please people; to oblige them. Unless the doctor cultivates egoism to a degree, he fails of success. He *must* think of himself.

He may use legitimate means of advertising; he must not hide his light. He may let it be known that he has had certain successes, or made use of original means of treatment. He must advertise to his brother doctors only, never to the public. Let others advertise him by favorable comment.

It should be a cardinal maxim of the ideal doctor to do his best always; never to shuffle, procrastinate, or half do a thing. Every case must be thoroughly treated, well digested, the best done possible. This may be difficult, but he must come as near to it as he can.

The ideal doctor is sparing of visits in a subacute or chronic case. In acute sickness, as peritonitis, pneumonia, meningitis, or in young children, he cannot go too often and he cannot go too early. Hours are days here. But in ordinary cases he can easily over-visit. There is the taint of commercialism, the abuse of the patient's means, in too frequent visits. Besides, they are destructive of diagnosis and prognosis. They weaken observation; seen too often, judgment is confused.

It is a question whether dispensary and hospital practice does not unfit the doctor for his private business. This sounds strangely, but there are two applications:

One who sees fifty Colles's fractures in a winter is better equipped for diagnosis and perhaps treatment than he who sees two cases. But, on the other hand, he who runs through a hundred cases of snap-diagnosis in a morning, gets an oversight and not an insight. It is the difference between the rustic and the cit. The former sees few objects and studies them down to the bottom; the latter tries to shut out and not see myriads of passers and a babel of sounds.

Another cardinal point for the doctor is to believe that no effort is wasted; all solid work tells in the end.

Now the ideal doctor, being kind to the poor, self-denying, overworked, has to push his egoism to the front, or he will be worn out. Self-preservation is an instinct not to be neglected. The altruistic doctor may feel that he ought to respond to every call, but can he? or ought he?

The doctor has legally a right to refuse any call; he is not obliged to go. If he is the only doctor to be had, humanity bids him go; otherwise he has a perfect right to decline.

The doctor is annoyed by bad debts, unpaid accounts. Most of them are lost; unless the patient pays willingly, he rarely pays at all. The discontented patient assumes poor treatment or an unfortunate result as a means of evading payment. Worse than this, he is easily led by bad counsel from others to bring claims and suits against the doctor. The latter must stand up against them or he loses his self-respect, and, moreover, the respect of others. On the other hand are many cases of gratitude or real effort to pay in later years which remunerate the doctor for his grievances.

Looking back on long years of practice, the doctor may fairly say that his professional life has been full of disagreeable incidents and anxieties; but, on the other hand, he has had many exquisite pleasures, the latter due to the recovery of patients from desperate sickness.

The ideal doctor looks after the interests of his brother physicians; he says no evil. Perhaps we are describing an impossible character, but we are striving for an ideal.

He who has a healthy body, he whose mouth is shut, whose heart is kind, whose intentions are sincere, who does his best, who treats his patient as himself, who looks after justice as well as mercy in his dealings, is altruistic and egoistic both, is the ideal doctor.

Does he exist?

THE TECHNIQUE OF RESECTION OF THE CECUM.

BY CHARLES L. SCUDDER, M.D., BOSTON,
Surgeon to the Massachusetts General Hospital.

Mr. L., thirty-nine years old, a young adult, was suddenly seized with acute abdominal pain forty-eight hours ago. He complained of some nausea, but he did not vomit. All the first day he felt chilly. The pain, which was at first general, settled finally in the right side of the abdomen, and to-day, the second day of the illness, became very severe. The bowel moved

the first day of the illness normally. The second day of the illness the bowel did not move. He had had no attack like this before. He had never been troubled by indigestion, nor had he ever been jaundiced. He had a slight rise of temperature and pulse.

Examination found the heart and lungs normal, the abdomen slightly tympanitic and showing moderate rigidity of the right rectus abdominis. There was tenderness over McBurney's point, where there was a small mass to be felt. Rectal examination discovered nothing abnormal.

An appendectomy was done. At the time of the appendectomy there was discovered on the anterior wall of the cecum a firm mass the size of a hen's egg. This mass was entirely distinct and separate from the appendix. It was thought that the mass was either the beginning of malignant disease, a thickening due to an old ulcer of the cecum, or a chronic inflammatory process of unknown origin. Three days after the appendectomy, the patient's permission having been obtained for the major operation, a resection of the cecum, including this mass, was done, and an end-to-side anastomosis of the ileum and transverse colon made. The patient has done uninterruptedly well since the operation. One small wick of gauze was left down to the retroperitoneal tissue at the situation of the resected colon. The microscopical examination showed the mass to be due to a chronic inflammatory process. The appendix showed no pathological changes.

Certain occasions arise when it is necessary for the surgeon unexpectedly to resect the cecum without previous preparation. Every surgeon doing abdominal work should be familiar with the technique of this operation. The abdomen should be opened by that incision which will render most easily accessible the parts to be operated upon. An incision in the right linear semilunaris is satisfactory in most instances. This incision may be enlarged by an incision at right angles to it, extending into the loin. The oblique incision parallel to and above the crest of the ilium is also a convenient one. This latter is practically the continuation forward of the incision for nephrectomy.

The parts being well exposed, an incision is made through the posterior parietal peritoneum at the outer side of the cecum and ascending colon. The colon is freed from its bed until the hand passes beyond its inner border behind the peritoneum. The vessels behind the posterior parietal peritoneum — the branches of the ileocolic artery — are divided and ligated with fine silk by the use of a Cleveland needle. All mesenteric vessels to the cecum and to the ileum, so far as it is decided necessary to remove the ileum are likewise ligated. This leaves the part of the bowel to be removed entirely free. A rubber-covered clamp is placed upon the distal portion of the ascending colon. A clamp without rubber cover is placed near it upon the ascending colon. The bowel is divided between the clamps as is indicated in the drawing. Sufficient space is left upon the proximal end of the ascending colon, that is, between the clamp and the cut end, to enable a purse-string suture to be placed as indicated in the drawing. The distal divided end of the colon is closed by an over-and-over continuous Pagenstecker linen suture. This suture closes the colon and checks all bleeding from the mucous membrane. The rubber-covered clamp is then removed. The closed end of the colon is pushed within the purse-string suture, which is drawn taut and tied. Three or four interrupted mattress sutures are now placed over the dimple formed by the puckering purse-string suture. There are thus three sutures between the mucous membrane of the divided gut and the general peritoneal cavity. These are sufficient to secure absolute closure of the bowel.

The clamped cecum is now held with gauze by an assistant while two clamps are placed upon the ileum, the rubber-covered clamp being placed upon the proximal portion, the clamp without the rubber cover being placed tightly upon the portion to be removed. The ileum is divided, as shown in the drawing, obliquely, so as to preserve by a good circulation the integrity of the bowel opposite to the mesenteric attachment. A point is selected upon the ascending colon or transverse colon at which the divided ileum is anastomosed to the colon. In the instance at hand I was unable to utilize the small remaining portion of the ascending colon, as it was tightly fixed and immovable. I therefore performed an end-to-side anastomosis between the ileum and the transverse colon. After transverse division of the bowel it may be longitudinally divided opposite the mesenteric attachment, the corners thus formed rounded off. Thus is secured a larger opening and one less likely to be subsequently constricted. The portion of the transverse colon where the anastomosis was made was isolated by means of a rubber-covered clamp, thus checking hemorrhage and occluding the bowel. The suture used was the Pagenstecker linen thread, with a straight No. 6 milliner's needle. A posterior peritoneal muscular suture was first used, the colon was then opened to the width of the diameter of the ileum, then a suture placed, including all coats of the bowel, around the entire circumference of the ileum, and finally the peritoneal muscular suture was completed. A bit of omentum was fastened as a plastic over the line of suture.

The general abdominal cavity through the whole of this procedure was entirely protected by gauze. The operation was done practically extra-peritoneally. Upon the removal of the superficial layer of soiled gauze the deeper layer of unsoiled gauze still protected the abdominal cavity. The parts were washed carefully with salt solution. The clean gauze was removed from the abdomen. The abdomen was closed with the exception of one small wick to the retroperitoneal attachment of the ascending colon.

A lateral anastomosis of the side of the ileum to the side of the colon is often a convenient method of completing this operation. If there is need for speed in finishing the operation, the Murphy button may be used to advantage.

I believe that an end-to-side anastomosis may be done as securely and safely as a lateral anastomosis.

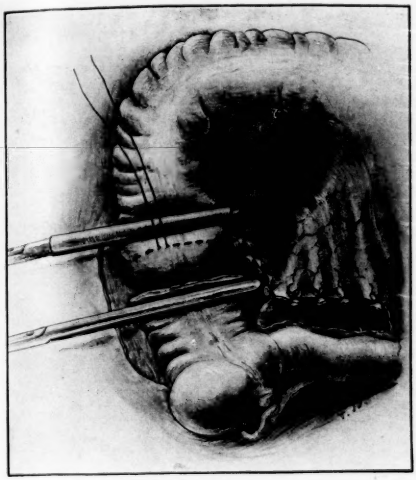


FIG. 1. — To illustrate the technique of the first part of the operation for removal of the cecum. Note peritoneal incision parallel and external to ascending colon, cecum and ascending colon freed from retroperitoneal attachment, clamps for cleanliness and hemostasis applied, continuous over and over suture to occlude distal colon, purse-string behind occluding suture, ligated vessels of colon in the freed edge of posterior parietal peritoneum, ligated vessels in the free mesentery of the ileum.

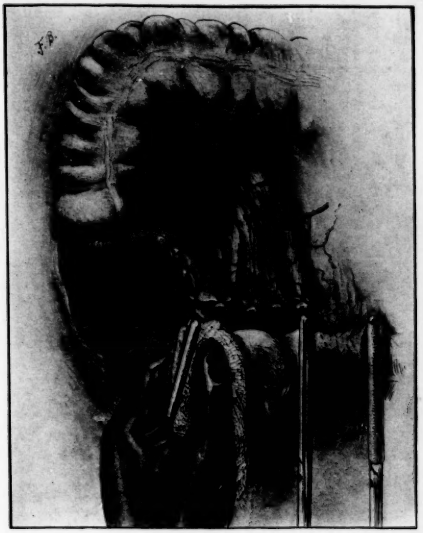


FIG. 2. — To illustrate the technique of the second part of the operation for removal of the cecum. Note the retroperitoneal bared area, the bed of the cecum and ascending colon, which have been lifted with gauze forward, clamps upon the ileum, the proper line of section shown as a dotted line. The occluded distal end of the colon has been placed within the purse-string suture and the latter has been tied, and this drawing shows a few interrupted Cushing sutures placed over the purse string to secure greater safety.

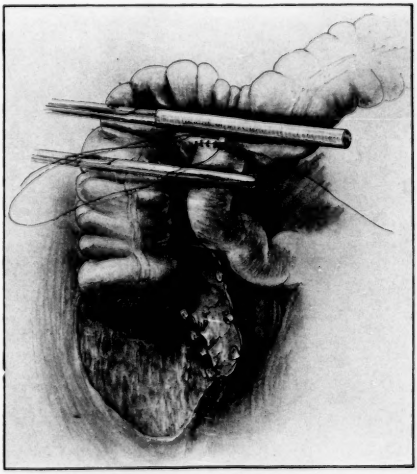


FIG. 3. — To illustrate the technique of the concluding part of the operation for removal of the cecum. Note the clamp upon the transverse colon and the one upon the ileum, the end to side anastomosis of the ileum into colon, the last half of the peritoneal Cushing suture is shown being placed. The omental graft placed about the line of suture is not shown.

PLASTIC OPERATIONS FOR RESECTION OF THE NASAL SEPTUM AND EXCISION OF SEPTAL SPURS.

BY GEORGE H. POWERS, JR., M.D., BOSTON,
Aural House Surgeon, Massachusetts Eye and Ear Infirmary.

I. ON RESECTION OF THE NASAL SEPTUM.

As regards the etiology of deviations of the nasal septum, much has been written; it is not the purpose of this paper to discuss what part is taken by trauma or anomalous development in the production of this condition. Suffice it to say that the nasal fossæ are, in the majority of cases, asymmetrical. However, it is only the deviation producing symptoms which calls for surgical interference. It is obvious that if the nasal fossæ are wide, a considerable degree of deviation may cause little or no obstruction to respiration. The principal object of surgical intervention is to overcome the stenosis; pathological conditions in the nose and naso-pharynx, particularly in the region of the ostium tubæ, directly traceable to the deviation in many cases, may later receive attention.

For some years the Asche and Gleason operations have been practically the only measures employed for relief of this condition. The Asche operation consists in a crucial incision through the septum at the point of greatest convexity, followed by a forcible reduction of the deviation, and the subsequent wearing of a perforated hard rubber splint in the nostril for at least five weeks. The Gleason operation consists in making a U-shaped incision through the septum, the flap thus produced being forced towards the concave side, and maintained in this position either by means of a splint or gauze packing. Both of these operations are easily and rapidly performed, but the course of after-treatment is extremely long and tedious to the patient, the wearing of splints being particularly annoying.

The purpose of the resection operation (as originally described by Krieg and Bönninghaus, and since modified by many men both in this country and on the Continent) is to completely remove the offending portion of the septum, whether cartilaginous or bony, or both, preserving, however, a flap of mucous membrane and perichondrium which is intended to cover the site of the resected portion on completion of the operation. It is the integrity of this flap and its proper apposition which ensures primary union and therefore a speedy recovery.

As regards the details of the operation: After the nose has been thoroughly cleansed, the parts should be thoroughly anesthetized, preferably both sides of the septum, by the use of cocaine. A convenient method is to use a solution of Cocaine Hydrochlorate (10%) and Adrenalin Chloride (1/1000) in equal parts. It is well to gently rub the mucosa with pledgets of cotton, moistened with the solution, as by this method a more rapid anesthesia is produced than if the nose were simply packed with similar pledgets. The absorption of cocaine is less, with therefore less danger of constitutional effects, while the anesthesia produced is as complete as though the cocaine were allowed to remain in the nose for a longer space of time. It is needless to say that careful asepsis must be observed.

The incision through the mucosa may be made with a long curved bistoury, beginning behind and below the posterior limit of the deviation. A slight but firm pressure is required in making this incision, as only the soft tissues need be incised. The incision is carried from behind

Fig. I. — Curved Bistoury.

forwards to the anterior limit of the deviation. A second incision is now made with the bistoury, beginning well up on the septum and joining the anterior end of the horizontal incision at nearly a right angle.

If the mucous membrane is not abnormally adherent, it may now be readily elevated and peeled back; if it is adherent, the operator will be amply repaid for his pains if he carefully dissects up the mucosa with a knife (the curved bistoury answering the purpose admirably), for the flap is a very important factor in regard to after-treatment and the final result. It may be added that the mucous membrane is, as a rule, adherent only in those cases in which the deviation is very far anterior. For elevating the mucosa, an instrument similar to that shown in Fig. I will be found very serviceable. The

Fig. II.

smaller end is used for this purpose, the blade being 2 cm. in length, 0.5 cm. in width, and a little less than 1 mm. in thickness, and slightly curved. This curvature allows the operator to keep the point of the instrument in close contact with the septum, thereby lessening the danger of perforating the flap during the process of elevation. When the flap is formed it may be pushed up and packed lightly in place with a pledget of cotton, in order to keep it out of harm's way during the resection.

There has been a great variety of instruments devised for the work on the cartilaginous and bony portions of the septum. A slightly modified Grünwald forceps is a very serviceable instrument, the modification consisting in having the under surface of the lower jaw of the instrument

Fig. III.

filed down at the point. By this means, after making a perpendicular incision through the cartilage, it is possible to slip the lower jaw under the cartilage more readily, the mucosa of the opposite side being by this procedure quite easily dissected away from the cartilage. The instru-

ment is equally efficient in resecting portions of the bony septum. When the operator has to deal simply with the cartilaginous septum, a sharp gouge will be found to be a more convenient instrument than any of the biting forceps. A gouge such as that shown in Fig. III has been

FIG. IV.

made on the lines of a chisel for use in septal operations, devised by Charles N. Spratt, M.D., of Minneapolis. With this simple instrument the cartilage may be very rapidly and accurately resected, with no previous dissection of the mucosa of the opposite side; for, while the cartilage is very readily cut with it, the reverse is true of the soft tissues. Another advantage in excising the cartilage by this method is that there are no projecting points left to be dealt with, as the gouge leaves a smooth, even surface.

When sufficient cartilage has been excised, the flap of mucosa is brought down and distributed evenly over the operative field. One of two methods to keep this flap in apposition may now be employed; it may be held in place by three or more sutures (using needles devised especially for this purpose by Leon E. White, M.D., of Boston), or a light gauze packing may be introduced, care being taken to retain the flap in position by means of a thin spatula held firmly over it. The latter method would appear to be the simpler, in that more or less packing is essential in case the flap is sutured, in order to control hemorrhage as well as to prevent the accumulation of fluid under the flap.

On completion of the operation, the portion of the septum operated upon will be seen to consist merely of two layers of mucosa, with the perichondrium. The deviated cartilage, or bone, having been removed, this septum of soft tissue will be straight, or nearly so, allowing free respiration on the previously obstructed side. The question of how much bone or cartilage is to be removed, is easily answered during the course of the resection, as it will readily be seen to what extent this must be carried in order to provide free breathing space.

The most common objection to this operation is the so-called danger of a resulting "saddle-back" deformity. As a matter of fact, the cartilaginous septum, which contains the great majority of operable deviations, enters in no wise into the support for the nasal bones; the bony septum may do so in a measure, but how many cases, notably specifics, do we see, of almost total destruction of both the bony and cartilaginous portions of the septum with "saddle-back noses"? It is an exceptional case, in any event, in which the resection of the greater portion of the bony septum is indicated. Of twenty cases operated upon during the past year, in no instance has there been the slightest tendency towards this deformity; nor, in reading over the literature on this subject, is mention made of any such untoward effect of this operation. The after-treatment will be dealt with in conjunction with the after-treatment in cases operated upon for septal spurs.

II. ON EXCISION OF SEPTAL SPURS.

As in the resection operation, a flap is dissected up, beginning the horizontal incision behind and below the obstructing prominence. It may seem difficult to dissect up a flap of mucosa in the posterior region of the nose, but in reality it is easier than in the anterior third, since in the former location, the mucous membrane is not so subject to trauma as in the latter; for where the spur or deviation is within 1 cm. of the vestibule, it will frequently be found that the mucosa has become thin and fibrous from constant irritation by the finger in attempts to relieve the stenosis. The septal mucous membrane in the posterior two-thirds, on the other hand, is very rarely adherent, except perhaps, in those cases in which the mucosa has been the seat of an ulcerative process, as in nasal diphtheria, and will be found to peel up very readily. As before, the flap is packed away from the field of operation until the obstructing cartilage or bone has been completely removed.

The most convenient instrument for removing spurs by this method is a chisel designed especially for this purpose by Charles N. Spratt, M.D.

FIG. V.

A very useful addition to this instrument is a handle set at an angle of 120° to the shaft, for convenience in manipulation. The cartilaginous spur may be either shaved down gradually, or may be removed as a whole, or in comparatively large sections, with the aid of a mallet, care being taken not to strike the chisel with sufficient force to produce a fracture of the bony septum. Where the spur is found to consist of bone the latter method will be found more applicable. If the spur is situated near the floor of the nose, a gouge, such as that shown in Fig. IV, will be found very useful, as it is difficult to remove cartilage or bone in this location, leaving a smooth surface, by means of the chisel. When the stenosis has been completely reduced, the flap may be replaced, as in the resection operation, and held in position by sutures, or simply by light gauze packing, as the operator chooses. There does not seem to be any difficulty in keeping the flap in place by means of the packing; but this is purely a matter of preference.

The after-treatment in these cases is very simple and of short duration. It may be advisable, in case there has been but little hemor-

rhage, to allow this packing to remain only twenty-four hours, removing it gently at the end of that time in order not to disturb the flap of mucosa. The flap will usually be found sufficiently adherent in twenty-four hours to permit of this procedure, and since a gauze packing must of necessity be a source of considerable irritation to the intranasal structures, with especial reference to the lower turbinate, it is apparently indicated to remove the gauze as soon as it may safely be omitted. Secondary hemorrhage from this plastic operation has been quite rare in my experience, but two cases, and one of these a hemophiliac, having come under my observation.

After removing the packing, any secretion or blood which may have accumulated may be gently removed with cotton pledgets, and a tampon of absorbent cotton introduced into the vestibule. This tampon should be changed by the patient as often as it becomes moist. In the course of the after-treatment, it will occasionally be noticed that there is a small area left by shrinkage of the flap, and in this area small granulations may appear. A single application of solid nitrate of silver is usually sufficient to reduce these, the interval becoming rapidly covered by epithelium. Primary union occurs in a great many cases, so that complete healing of the wound takes place in from four to ten days where a perfect flap has been preserved. When a considerable amount of the flap has been lost, the course of after-treatment is proportionately prolonged.

It is true that this operation consumes more time, and is therefore more tedious to both patient and operator, than in removing spurs with the aid of the saw. But, on the other hand, the after-treatment of the plastic operation is shorter and less painful than even the most rapid result to be expected from the saw operation. The hemorrhage, both at time of operation and secondarily, is markedly less than with the latter procedure. Moreover, the time necessary for the plastic operation is not very great; in fact it will very rarely exceed forty minutes, from fifteen to thirty minutes being a fair average. The resection operation requires a somewhat greater length of time, since usually a more extensive procedure is indicated. That operation, however, should not consume more than one hour even in difficult cases; but the longer time required for the actual operation is more than compensated for by the gratifying end result, *viz.*: the rapid union.

The technique of the resection operation has been discussed and greatly improved upon in the last two years, although on somewhat different lines, by Drs. Otto T. Freer of Chicago, and Leon E. White of Boston, whose respective articles in the *Journal of the American Medical Association* and the Boston Medical and Surgical Journal are very comprehensive and instructive. I may also refer to a well written discussion on this subject by Charles N. Spratt, M.D., of Minneapolis, published in *American Medicine*. (I am indebted to Messrs. Codman and Shurtleff for kindly furnishing the accompanying illustrations.)

Clinical Department.

A CASE OF INTRAPERITONEAL RUPTURE OF THE BLADDER.

BY DANIEL FISKE JONES, M.D., BOSTON,
Surgeon to Out-Patients, Massachusetts General Hospital.

The following case of rupture of the urinary bladder is reported because of several unusual features and because of its interest to the general practitioner:

Mrs. R. M. C., aged twenty-two, was brought to the Massachusetts General Hospital at about 7 P.M., Aug. 23, 1903. Her history taken at that time is as follows:

The patient had always been well except for a miscarriage two years ago, when three months pregnant. Four days before entrance she was delivered of a healthy child at full term after a moderately hard labor. The attending physician had difficulty with an adherent placenta, but what was taken to be the whole placenta was delivered after some time, with the loss of considerable blood. The physician left the patient in the evening with the uterus well contracted, but on his return the next morning the uterus was greatly enlarged and "the bed was soaked with blood." Another physician was called in consultation and advised curetting the uterus. This was done and some small pieces of placenta were obtained. The uterus contracted well and remained of moderate size. From the time the patient was curetted until she entered the hospital she had constant pain across the lower abdomen. No vomiting. The bowels had not moved since the day the child was born.

Physical examination showed the woman to be well developed and nourished, but very anemic. Nothing abnormal was found in the chest. The abdomen was full, with little rigidity, but with considerable tenderness on deep palpation, especially over the lower half of the abdomen. There was some shifting dullness in the flanks.

Vaginal examination showed a slight tear of the perineum; vagina very moist; os soft, admitting the tip of the finger easily. Bimanually the uterus was enlarged with a hard mass in the left horn. Tubes apparently normal. Lochia foul. Pulse 120. Temperature 98.6°. Leucocytosis 35,000.

The patient was given an enema soon after admission and a very good result obtained. I saw the patient at this time, but did not feel that it was necessary to operate.

The following morning, Aug. 24, the patient seemed very much better; her temperature was 98° and pulse 88. The pain in the abdomen continued, but was much lessened. During the day she had two small movements. The examination of the urine made on this day has been lost.

Aug. 25. The patient was comfortable except for a slight pain in the right side of the abdomen. Small movement of the bowels. Abdomen still full, but soft.

Urine: Pale, acid, 1017, a trace of albumin, no sugar. Sediment: excess of small, round cells, very many leucocytes, many blood globules, occasional large epithelial cell, occasional hyaline and finely granular cast.

Aug. 26. Abdomen somewhat distended. Small movement after calomel. Patient says she is very comfortable except when she attempts to lie on either side, at these times the pain is so severe she has to get on to her back at once. Temperature 98.2°. Pulse 105.

Urine: Pale, acid, 1014, albumin ¼%, sugar absent. Sediment the same as found in the urine yesterday.

Because of the increase in the amount of albumin, the lower specific gravity and the appearance of the patient, it was thought at this time that the kidneys must be responsible for the patient's condition.

Aug. 27. The general condition of the patient became much worse during the night. Temperature 98.4°. Pulse 120 and very feeble.

It was quite evident that something must be done if the patient's life was to be saved, and a rapid laparotomy was decided upon.

The patient was lightly etherized and the abdomen opened by a median incision. The abdomen was found to be filled with a slightly cloudy fluid. The bladder was at once examined and found to have a vertical gaping wound in the middle of the posterior wall. This wound was about 1½ inches long, and the edges were thickened and stiffened by the reparative process so that the wound gaped wide open. The patient was put in Trendelenberg's position and two rows of chromicized catgut Lembert sutures were used to close the wound. The patient was then lowered, the abdomen hurriedly washed out with salt solution, and a gauze wick placed, running from the pelvis up over the wound in the bladder. The intestines were much congested and the peritoneum looked edematous, but there was evidence of a septic peritonitis in only one small area of the pelvis. The uterus was well contracted and of normal appearance. The patient stood the operation very badly, did not respond to stimulation of any kind afterward, and died in about four hours.

This case was most confusing throughout; her history would lead one to think of sepsis, but her appearance and symptoms made sepsis seem impossible. The albumin and casts in the urine and her appearance suggested that her kidneys might be the cause of her condition. The symptom which should have had more weight given to it, the shifting dullness in the flanks, was unfortunately given little attention. In the history obtained from the patient and her physician there was nothing whatever to indicate any injury to the bladder. During her stay in the hospital the patient urinated without difficulty and blood was never present except an occasional blood globule microscopically. On the day before the operation the patient complained of being unable to sleep on either side without abdominal pain. This symptom is very suggestive of ruptured bladder, but is a symptom of any irritating fluid in the peritoneal cavity and not pathognomonic of ruptured bladder.

We have in this case as causes of ruptured bladder: childbirth, which is a very rare cause, and the patient complained of no pain until the morning after the delivery; curettage of the uterus, which was done the morning following the delivery, seems to me an impossible cause; and rupture of an over-distended bladder which without trauma practically never takes place. We have, then, in our history no satisfactory cause for a rupture of the bladder. It will be noted, however, that pain in the abdomen began at about the time she was curetted, that is, the morning after the delivery. Several days after the death of the patient the attending physician told me that when he made his visit on the first morning he was shocked to find the uterus up to the umbilicus, and the patient very anemic. He hurriedly piled some books on to the bed, one on top of another, and threw the patient over on to them on her abdomen and held her down.

Unfortunately, this was not known until after the death of the patient, but it is my belief that it was a dilated bladder which was felt and not the uterus, and that the bladder was ruptured when the patient was thrown on to the pile of books.

For the reported cases of intraperitoneal rupture of the bladder the reader is referred to the paper by Samuel Alexander in the *Annals of Surgery* for August, 1901, page 209, and the paper by the author in the *Annals of Surgery* for 1903, page 215.

Reports of Societies.

AMERICAN PEDIATRIC SOCIETY.

SIXTEENTH ANNUAL MEETING AT DETROIT, MICH., MAY 30, 31, JUNE 1.

(Continued from No. 18, p. 498.)

FIRST DAY — (Continued.)

SOME OBSERVATIONS ON EPIDEMIC VULVO-VAGINITIS IN INFANTS AND CHILDREN.

DR. A. C. COTTON, Chicago, presented this report of an epidemic which occurred in the hospital from August, 1902, to Septemper, 1903, during which period 319 children were admitted to the hospital. The cases known to be infected amounted to 19, 1 male and 18 females, their ages varying from six months to thirteen years. The average duration of the cured cases was 116 days, the shortest period of discharge being 40 days, the longest 252 days. The first discharge was observed on Aug. 8, from the urethra of a boy two years old, who was under treatment for a rectal fistula. Seventeen days after his first operation the discharge occurred. Gonococci was next found in the vulvo-vaginal discharge in a typhoid fever patient two days after admission, and five days after the report of the first case. These two patients seemed to have given rise to the epidemic. Dr. Cotton gave the following conclusions: Every hospital for children must be protected against infection from without by well arranged detention wards, in which the newly admitted patient may be submitted to the closest scrutiny for a period of at least fourteen days to determine his freedom from acute infectious disease before admission to the general ward. A complete hospital should have ready for use properly located isolation wards to which patients may be removed upon the first appearance of suspicious symptoms of an acute infection. Gonorrhea was a most formidable disease in a children's hospital, and female infants were peculiarly susceptible to this disease. A patient in a children's hospital showing gonorrhea should be properly isolated and placed in charge of a special nurse. The interne or nurse while treating a gonorrhea patient should be relieved from other duties in the wards. The efficiency of any isolation may be questioned which did not individualize strictly, not only in regard to the treatment, care and manipulation of the patient, but also as to the use of clothing, bed linen, feeding utensils, thermometers, douche pans, etc. The same care by nurse and physician in sterilization was necessary, as would be

observed in going from a child with any acute infection to a non-infected child.

DR. A. JACOBI, New York, said that undiapered children of two, three and four years of age carry their fingers everywhere, and by preference about the abdomen, and it would be expected that they would carry pus to the eyelids, but such was not, as a rule, the case. He said that no doubt all had seen secondary involvement of the cervix, the uterus, occasionally a nephritis, a pericarditis, etc., and it could be readily seen that a more favorable course was run in children than in adults. Dr. Francis Huber's paper on peritonitis secondary to gonorrhea was of great interest, the patient recovering. Also, he said, Dr. Northrup would recall two cases of gonorrheal arthritis occurring in one family and they got well; many cases occurring in infants and young children showed improvement or recovery.

DR. CHARLES G. KERLEY, New York, said that at the Babies' Hospital there were 15 or 20 cases of arthritis in two years, and it was peculiar that there was found no evident source of infection. Dr. Kimball had reported 8 cases, 7 taking place in boys, and the only possible course of infection was from a stomatitis. In the boy there were no local lesions.

DR. JACOBI saw one case in which there was a myositis.

DR. L. E. LAFETRA said he had seen two cases of gonorrheal arthritis, one a baby three weeks old, the other a child eight months old. In the case of the baby the source of the infection appeared to come from the mother; the child had been circumcised and the mother had gonorrhea at the time the baby was born.

DR. ISAAC ABT, Chicago, had seen but two cases of vulvo-vaginitis with complications, one being an arthritis, the other a cystitis. As a rule, he found the cases yielded to treatment, 25% ichthyol in glycerine being packed in the vagina.

DR. AUGUSTUS CAILLE, New York, said that some years ago the attention of the Post Graduate Hospital was called to this disease by reason of a suit against the institution. A child was admitted apparently in good health; ten days later she developed a severe specific vulvo-vaginitis. Every child now admitted to the institution was carefully examined and a swab culture made. If gonococci were found, the child was rejected. Treatment pursued by him was to swab with a nitrate of silver solution, 5 to 10% strength, then use protargol and permanganate of potassium. He never used the fountain syringe and he had seen injury result from douching.

DR. SAMUEL S. ADAMS, Washington, D. C., said that they admitted these cases of vulvo-vaginitis in the hospitals there, for they did not feel that it was necessary to exclude such cases. He referred to a family of seven children where all within a short period of time were infected from both father and mother, and were admitted to the hospital and successfully treated in a short time. Each of these children had alternately slept in the bed with their parents and so contracted their vulvo-vaginitis.

A CASE OF CARBOLIC ACID POISONING SIMULATING ACUTE SCARLATINAL NEPHRITIS.

DR. SAMUEL S. ADAMS reported this case. The patient was a child of ten years, white, who had a moderately severe attack of scarlet fever without any troublesome symptoms, and who was first seen by him Feb. 3, 1904. On the 9th the child complained of intense itching, and he instructed the mother to bathe her twice daily with a solution of commercial carbolic acid and water, a teaspoonful to the quart. On the 19th she was again visited and found to be in excellent condition. Desquamation was very profuse. The itching had been allayed by the baths and there was no tingling or irritation apparently from the carbolic acid baths. On Feb. 22 the report was received that the child was bright and happy, but had passed a fair quantity of dark urine, a specimen of which was sent him. Examination of this showed albumin was present, red cells, hyaline, and granular casts, all in moderate numbers. When he saw the patient the eyes were puffy; otherwise she was in good condition. The baths were stopped. On the 24th the puffiness had disappeared. The urine gradually improved.

Dr. Adams said that having previously reported cases of carbolic acid poisoning following its use on the skin, he was satisfied from the urinalysis made that the nephritic symptoms were due to the irritation of the drug and not to the toxemic effects of the scarlatina. This opinion was confirmed by the speedy relief of the kidney irritation *pari passu* with the elimination of the carbolic acid. Such a weak solution of the acid was used, it seemed to him reasonable to attribute the toxic effects to an idiosyncrasy on the part of the patient.

GASTRO-INTESTINAL TOXEMIA.

DR. B. K. RACHFORD, Cincinnati, said that gastro-intestinal toxemia as differentiated from auto-intoxication was a systemic intoxication, produced by poisons formed in and absorbed from the gastro-intestinal canal. He said it was possible that the poisons produced by bacteria in the intestinal canal might have their origin from three different sources (1) The components of dead bacteria might furnish a certain amount of proteins as, for example, tuberculin, which is a portion of the tubercle bacillus; (2) living bacteria in the intestinal canal may and do excrete ferments or toxins, capable of producing the most profound symptoms; (3) substances produced by bacteria from the culture media are possibly important sources of intestinal intoxication. Among the poisons of this class ptomaines held the most important place.

ACUTE INTESTINAL TOXEMIA.

This, he said, was more common in the infant and young child than in the adult, and was probably due to a number of causes, the most important of which was the great irritability and the immaturity of the child's nervous system. A small quantity of the poison absorbed may produce high fever, convulsions and other pronounced nervous symptoms which in an adult might be easily resisted. It was also true that severe albuminous fermentations capable of producing virulent toxins were more common in the child than in the adult. This was probably due to the fact that the hydrochloric acid function of the stomach was not so well developed in the young child as in the adult and, therefore, not capable of exercising the same control in preventing intestinal fermentation.

CHRONIC INTESTINAL TOXEMIA.

It was to this form that the reader of the paper wished to call special attention because of its importance as an etiological factor in producing nervous symptoms in children and which was so often overlooked. This form might be associated with diarrhea, although constipation might exist. Constipation might exist even when the child had a movement of the bowel every day. In order to prevent hyperfermentation and increased absorption of intestinal toxins, the food material should not be allowed to be retarded, and when ejected they should have the moist form of a normal intestinal evacuation. So important was

the rôle played by chronic intestinal toxemia in the production of neurotic diseases in a child that he invariably began his treatment of nervous diseases by a careful investigation of the intestinal canal. Among the symptoms which might be produced or exaggerated by intestinal toxemia might be mentioned malnutrition, anemia, headaches, general malaise, fever, heightened reflexes, general nervous irritability, hysterical and neurasthenic symptoms, bradycardia, hyperesthesia, nervous anxiety, psychoses, etc.

Intestinal toxemia, acute or chronic, was not an uncommon complication of other diseases, such as typhoid fever, malaria, tuberculosis and chronic diseases of the gastro-intestinal tract.

The urine furnished valuable evidence of the existence of intestinal intoxication by learning of the presence of indican and the ethereal sulphates. The presence of these substances was sufficient reason for suspecting a hyperfermentation of albuminous food stuffs in the intestinal canal, and also usually meant the retardation of these food stuffs through the canal. The etiological importance of the vegetable organisms in producing intestinal toxemia should not cause one to overlook the rôle animal parasites play.

DR. A. JACOBI, New York, said that formerly the textbooks gave worms as a cause of the symptoms as described. The raw vegetables, such as are taken in Germany and Hungary, would produce just such a train of symptoms. In one of the cases reported reference was made to the nervous irritability, which was very marked, and the condition of anemia of the brain would predispose to this. Dr. Jacobi had frequently thought that a protracted anemia would cause an insufficient secretion of gastric and pancreatic juices and so interfere with normal digestion. The presence of indican in the urine added much to the ease in diagnosis. Regarding obtaining the urine from babies for diagnostic purposes, he said that nothing could be easier. In a number of cases it might be sufficient to rely upon cleanliness and apply a mass of absorbent cotton; when the urine had passed into it, then with a clean hand squeeze it out. Dr. Jacobi usually relied upon the catheter, which was easy of introduction in small children, more so than in adults, because he did not encounter so many strictures. The only difficulty encountered was in small girls, and here one must use the eyes very carefully and not miss the urethra.

DR. F. FORSCHHEIMER, Cincinnati, said that he had been interested in this subject for years, especially as many men did not believe in the existence of this condition as an etiological factor; even such men as Professor Osler did not believe in it. He referred to the publication of Bouchard on chronic auto-intoxication, and in order to prove his work he made a number of experiments, taking urines from patients suffering from various troubles, and his results had been published and did not need repetition. As a result of his investigations he found that the toxicity of the urine used by Bouchard was due to faulty methods. With proper methods, none was toxic.

When indican became so much talked about he then examined all urines in which a diagnosis of chronic intestinal auto-intoxication was made; unfortunately, indican did not show very much so far as chronic intestinal intoxication was concerned; in a very large number of cases indican was not present at all. At all events, to find indican in the urine once meant nothing at all; but if found many times after repeated examinations, then it was to be presumed that there was some abnormal condition going on in the intestinal canal causing it, *i. e.*, a change in the albumin to indol, and then the indol would be converted into indican. In the cases he had examined he found eosinophilia existed.

In children he said there was an accumulation of fecal material in peculiar-shaped places, *i. e.*, in the intestines where there were extra curvatures, as at the sigmoid, and therefore the fecal matter would be retained for some time, and this accounted for the constipation and also for the diarrhea; when fecal matter remained in one place a certain length of time diarrhea followed. But in adults the condition was different. Here the special places for the deposit of fecal matter was at various curvatures, at the sigmoid flexure, at the hepatic flexure, at the splenic flexure and at the head of the colon. Sometimes the whole of the large intestine was blocked up. He wished to lay particular stress upon the condition he had once described as chronic ulcerative stomatitis, which occurred in children quite rarely and in adults quite frequently in the form of Rigg's disease. Curiously enough in Rigg's disease he had always found uric acid, and he came to the conclusion that uric acid was due to some auto-intoxication.

DR. B. K. RACHFORD closed the discussion. In regard to the presence of indican in the urine, he said that if one kept facts clearly in mind, there would be found little difference of opinion. There were cases of auto-intoxication in which the indican did not occur in the urine because fermentation had not occurred to change the indol into indican. Again, there was a class of cases in which indican could be found in the urine and without any clinical symptoms of auto-intoxication, possibly because the child was able to resist it and filter the poison and so manage it. We knew that indol was formed in the intestinal canal by hyperfermentation and was one of the results of putrefaction. We also knew that indol was a poison and probably was associated with other poisons about which we knew nothing. It was known, too, that the presence of indican in the urine meant the presence of indol in the intestinal canal. Therefore, there was a relationship.

CLINICAL MANIFESTATION OF ACUTE OTITIS IN CHILDREN; A STUDY OF FIFTY-ONE CASES IN PRIVATE PRACTICE.

DR. CHARLES G. KERLEY, New York, reported a few of these cases, illustrating them by a number of temperature charts.

SECOND DAY, MAY 31, 1904.

NERVOUS EXHAUSTION IN INFANTS.

DR. WILLIAM P. NORTHRUP, New York, reported some cases of nervous exhaustion occurring in young babies as the result of noisy surroundings and of too much petting at the hands of parents, grandparents and friends to whom the wish was to "show off" the infant. He thought the society should interest itself in teaching the lesson of quiet surroundings, and especially of allowing a certain quiet to initiate stomach digestion. He pointed to the necessity of close and constant watching and individual case studying. The coming generation should be protected from nervous exhaustion, nervous dyspepsia, sleepless nights and choreic jerkings before they cut their first teeth.

DR. AUGUSTUS CAILLE referred to the hysterical activity of the times and said that the hysterical doctor was, as a rule, a very popular man. He thought we were to blame for the conditions Dr. Northrup criticised.

DR. C. P. PUTNAM said he was always afraid of the so-called "good" nurses who are so devoted to the children. By their devotion they kept the children awake.

DR. SAMUEL S. ADAMS said that we should beware of the nurse who puts the child to sleep, and especially the very much over-rated southern "mammies."

DR. R. G. FREEMAN referred to the condition of nocturnal incontinence of urine which could be cured by taking the child away from the neurotic mother or nurse and placing the child under the care of a trained nurse. Many cases of constipation in infancy was due to the nervous environment. This could be easily remedied by placing the child in proper environment.

THE INFLUENCE OF AMERICAN PEDIATRIC SOCIETIES IN PROMOTING THE WELFARE OF AMERICAN CHILDREN.

DR. AUGUSTUS CAILLE, New York, delivered the presidential address and said that the American Pediatric Society had for its object the advancement of the physiology, pathology and therapeutics of infancy and childhood. After fifteen years of prosperous existence, he thought the time had come when this society should be ready to assume broader obligations and to grapple with larger problems, to promote and shape the public understanding regarding sanitation of the child's environment and to supervise the education of the American children from a medical standpoint. He, therefore, asked permission to point out briefly some of the more important matters to which they, as a body, might direct their attention.

THE OVERHEATING OF AMERICAN HOMES AND THE FEAR OF CATCHING COLD.

This was a most fruitful source of ill health in children. The fear of breathing fresh air still held possession of the multitude as it did in former times when microbial infection was a *terra incognita*, and the comparatively few who have dared to advocate the breathing of cool, fresh air were looked upon as little short of dangerous advisers by the wiseacres of the domestic hearth. The susceptibility to cold-catching could be markedly reduced by a judicious bathing process in connection with proper alimentation. In older children a hardening process by cold douching was undoubtedly beneficial and would strengthen the child's forces and permit it to overcome inclement influences of various kinds. This susceptibility to cold-catching could not, however, be reduced in homes in which overheating of the living apartments was tolerated. One of the most dangerous methods of heating a room he believed to be the portable gas stove not connected with a flue, because the products of combustion remain in the room and vitiate the air to such an extent that those living in it suffer from general malaise and, in infants, various forms of ill-defined sickness. Overheating and faulty heating should be condemned by the medical profession at every opportunity, and fresh air treatment of the healthy and sick children should be insisted upon. In Boston the wealthy and aristocratic families were putting their babies to sleep out of doors on roofs, balconies and wide window sills.

DISINFECTION AND THE SANITARY CODE.

He said that the removal of the child to another apartment during the fumigation process theoretically and practically nullified all efforts to destroy the sources of infection and stamp out contagious diseases. The compulsory cleansing of an apartment with soap and water as practiced in Germany had more real value than fumigation with sulphur. One of the principal means of the spread of infection could be found in the cloakroom of factories and schools. The same might be said of books in schools and libraries; they are frequently soiled with the nasal discharge of the sick. Compelling children who are convalescing from diphtheria to keep indoors until all bacilli had disappeared from the throat was unreasonable because it deprives them of the tonic effects of fresh air which they required, and because the infectious nature of these bacilli found during and after convalescence had not been proven. He deprecated the taking away of children suffering from ordinary eruptive fevers and transferring them to suburban hospitals against the will of the parents. The fear that such a course would be pursued had prevented parents calling in a physician, and had kept well meaning and humane physicians from reporting cases. If the community demanded isolation of these cases, the authorities should insist upon securing proper accommodations for mother as well as child.

SCHOOL HYGIENE AND SCHOOL INSPECTION.

Under the championship of Dr. Caillé, at a public meeting of the pediatric section of the New York Academy of Medicine, daily medical inspection of the schools of the city of New York first received its first practical agitation in 1890. It was successfully inaugurated in Boston in 1894, in New York in 1897, in Philadelphia in 1898. This inspection had primarily for its object the early detection of communicable diseases, but it should embrace the hygienic guardianship of school children. Such inspection revealed unsanitary conditions in general existing in schools, day nurseries and kindergartens, and was a powerful factor in promoting the cleanliness of the scholars, and insured proper attention to existing parasites, skin lesions and obnoxious habits. Communicable diseases, mouth-breathers, backward and neurotic children, anemic children, etc., were detected and put in the way of receiving the benefits of proper treatment. It was estimated that fully 90% of the curvatures, not due to bone disease, was developed during school life by faulty positions in sitting, writing, in study and in standing. The early detection of vaginal discharges of gonorrheal origin was most important. When medical inspection was continued with rational elementary instruction in hygiene, the best chances were offered for lessening the sickness in school children, because teacher, parents, family physician and inspector coöperate.

SCHOOL FATIGUE AND BACKWARD CHILDREN.

In 1900, 16,000,000 children were enrolled in the common schools of this country. A gain in knowledge at the expense of physical health he considered a loss. The opportunity for acquiring knowledge was the same for all school children, but not all children had the same capacity. The relative endurance of the sexes varied; about one girl in twenty was obliged to give up her school life on account of ill health. The present day native American girl of the middle class was the artificial product of advanced civilization; she was a bundle of nerves encased in a fragile frame. Too much strength of development was devoted to the brain with faulty physical expansion. He believed the pediatrist should call a halt and demand for the children less brain gymnastics and more fresh air and exercise. Backward children should have separate classrooms and special care. One of the duties of the physician, the statesman and teacher was to find out the place of the enfeeblement. They have the same right to an education which would fit them for a sphere of usefulness that the blind have.

BODILY TRAINING OF PUPILS AND SCHOOL BATHS.

Inhibition, to sit still, was one of the first lessons of school life; unnatural order should be dispensed with and the children should be allowed all the physical

activity compatible with the best results. The time was coming when the playground would be as seriously considered as the schools themselves. The lesson of personal cleanliness was one of the fundamental principles of education. The shower bath was the best and most sanitary for public schools and public bathing places, and probably was of more importance to the community than public libraries.

INFANTS AND CHILDREN'S HOSPITALS.

He believed that medical opinion should discountenance the erection of large institutions in the city to be filled with chronic cases and minor ailments. They were adapted only for the acute cases. The country and seashore sanitaria and floating hospitals were not for the chronic cases. As soon as their condition permitted, the children should be sent home from the hospitals because, as the result of hospital life only, they lose color, appetite and weight. For fighting house infection in the babies' ward of the Post Graduate Hospital, the following regulations were drawn: (1) Strict cleanliness of premises and inmates; (2) thorough ventilation; (3) sufficient air space; (4) no overcrowding of wards; (5) infants not to be fed by the same hand that attends to the toilet; (6) soiled linen is to be immediately removed and disinfected; (7) feeble children are toned up by a change of air (trip to Staten Island, omnibus ride through the park and sojourn in the sunbeam playroom and roof garden).

(To be continued.)

Recent Literature.

A System of Practical Surgery. By PROF. E. VON BERGMANN, M.D., of Berlin; PROF. P. VON BRUNS, M.D., of Tübingen, and PROF. J. VON MIKULICZ, M.D., of Breslau. Translated and edited by PROF. WILLIAM T. BULL, M.D., of New York, assisted by WALTON MARTIN, M.D., CARLTON P. FLINT, M.D., JOHN B. SOLLY, M.D., and EDWARD M. FOOT, M.D. Complete in five imperial octavo volumes. Sold by subscription only. Lea Brothers & Co., Publishers. Philadelphia and New York. 1904.

This work of five volumes comprises 4,220 pages, 1,976 engravings and 102 full page plates in color and monochrome. In regard to the original work, which is German, its character of composition corresponds to that of the best known books of modern surgery. That is, the specific portions are contributed by men noted for their skill and experience in their special lines of work; and the whole has been collected and edited by the distinguished surgeons whose names appear on the titlepage, and who are also actual contributors.

The present edition now under consideration is a translation of the second German edition, carefully revised and brought thoroughly up to date, both as regards new material and literature. The first German edition received prompt, widespread recognition and was soon translated into Spanish and Italian. In fact, it met with such demand that the earlier volumes were exhausted before the later ones were ready for issue.

Dr. Bull states in his preface that this American translation has been produced by himself and his collaborators with great fidelity and thoroughness. The latter are men of wide experience which has enabled them to add judicious references to American and English methods of practice. They have also increased the number of illustrations by collecting material from recent literature which, it is thought, will enhance the value of the text.

The work is encyclopedic in character and, as already stated, has been written by men of acknowledged authority and large clinical experience. While chiefly clinical in character there are abundant pathological data, details of original research work, and statistical facts. The second German edition is divided into four volumes. The chapters of what might be termed General Surgery, such as Inflammation, Infection, Repair of Tissue, Suppuration, Blood Pathology, Surgical Bacteriology, etc., usually introductory to this class of book, are omitted. The plan of classification is entirely regional, the customary "Continental" method, the American edition is published in five volumes, and for some reason the sequence of arrangement has been changed. For example, in the German edition, Volume IV, the final volume, describes the surgery of the extremities. In the American translation, Volume III deals with the extremities, while the concluding volume, Volume V, contains the surgery of the pelvis and genito-urinary organs. The titles of the volumes of the American edition in detail are as follows:

Vol. I. Diseases and Injuries of the Head. It is a book of 936 pages, 361 engravings, and 18 plates.

Vol. II is devoted to the Surgery of the Neck, Thorax, including the Mammary Gland, the Vertebræ and Spinal Cord, covering 820 pages and illustrated by 321 engravings and 24 plates.

Vol. III includes the Malformations, Injuries and Diseases of the Upper and Lower Extremities. 918 pages, 595 engravings and 21 plates.

Vol. IV might be entitled Surgery of the Viscera, since it describes the Malformations, Injuries and Diseases of the Esophagus, Abdominal Wall, Peritoneum, Stomach, Intestine, Liver, Biliary Passages, Spleen and Pancreas. 757 pages, 345 cuts, 16 plates.

Vol. V. Surgery of the Pelvis, Malformations, Injuries and Diseases of the Rectum, Anus, Kidney, Ureter, Bladder, Prostate, Urethra, Penis, Testes, Scrotum, Vas Deferens and Seminal Vesicles. 789 pages, 354 cuts, 23 plates.

To discuss fully so comprehensive a work would carry one too far into detail. Concisely one can say that it is an excellent presentation of the German school which in its foundation principles is everywhere based on the modern teachings of bacteriology and pathology. To fully enumerate the authors of the individual subjects would also require more space than is available for a review of this character. The list includes many men of international reputation. The thoroughly modern character of the

clinical and operative treatment described, the pathological information, the statistical data, make these volumes of great value and interest. One reviewer has been so enthusiastic as to describe the work as one which will probably remain for years the "Court of last resort" in questions of surgical theory and practice. While perhaps one is not quite ready to endorse so sweeping a statement as this, still one may fairly say that the work will well fulfil the expectation of the student of surgical science; while it furnishes a convenient and excellent means of a review of modern surgery, especially of the "Continental" school.

Perhaps if read exhaustively one notes at times a subject very concisely treated. On the other hand, some subjects are unusually complete for a work of this character, and are elaborated with great attention to detail. Taken as a whole, the "Theory and Practice" of surgery is very thoroughly presented.

The general plan of arrangement which, with few exceptions, is followed, is to subdivide each subject as follows: First, is presented the anatomical-pathological conditions of the injury or disease under consideration; next the clinical symptoms; then the diagnosis is discussed, and finally the prognosis and treatment. These subdivisions are indicated by paragraphing and heavy type headings, an arrangement which adds greatly to the reader's convenience. Each volume has its own index of subjects, the titles of each serving in part as a concise general index to the complete work.

The illustrations are abundant. They vary much in character and in quality of execution. Some are excellent reproductions of the originals; some are quite ordinary in character; some are exceptionally well chosen for illustration of the accompanying text. As a whole, they much increase the value of the work.

The work of the publisher, as regards type, quality of paper, binding, etc., excites only commendation. It is "clean cut."

If one would summarize a review of such a comprehensive book it is justifiable to write that these volumes will be found of great value both to the student and the scientific surgeon; and at the same time a trustworthy guide to the best and most recent methods of practice.

The Value of Ureteric Meatoscopy in Obscure Diseases of the Kidney. By E. HURRY FENWICK, F.R.C.S., Surgeon to and Lecturer on Clinical Surgery at the London Hospital. 219 pages. Illustrated. London: J. & A. Churchill. 1903.

The author of this volume presents it as a brief review of the subject of ureteric cystoscopy. He regards this method of examination as an important factor in determining the condition of a kidney; that it also shows the condition of the bladder and the opposite kidney. The rules formulated by him for ureteric cystoscopy are the result of a ten years' experience. The first part of the book contains an enumeration of some of the important points of cystoscopic technique and a description of the various conditions found with an explanation of their clinical significance. Some interesting anatomical variations are mentioned. The sections on renal hematuria, either with or without pain, are important communications, and contain descriptions of pathological conditions and the clinical symptoms resulting, which will explain many obscure cases reported in surgical literature; for example, long continued hematuria without pain, due to a circumscribed renal angioma. A description of the phenomena accompanying calculi ot the kidney and ureter and urinary tuberculosis occupy the concluding chapters. The volume terminates with a discussion of the "freezing point depression" in determining renal insufficiency, and the cystoscopic findings in fifty cases of proved urinary tuberculosis with their clinical histories. The book is well illustrated, showing cystoscopic views, cuts of pathological conditions, and diagrams, with some colored plates.

To those wishing to learn something about the most recent method of studying renal disease this book is of importance and interest.

The Suppression of Tuberculosis, together with observations concerning phthisiogenesis in man and animals, and suggestions concerning the hygiene of cow-stables and the production of milk for infant feeding, with special reference to tuberculosis. By PROF. E. VON BEHRING. Authorized translation by CHARLES BOLDUAN, M.D. New York: John Wiley & Sons. 1904.

The suppression of tuberculosis is a work of universal interest. A disease which is so widespread and which attacks the human race in so many ways can be successfully combated only by the coöperation of many different agencies. It is, therefore, of great importance that the origin of tuberculosis be well understood, not only by physicians, but by many outside the medical profession, such as dairy and cattle men, health officials, sanitary engineers, etc. The translator has in this volume presented to the reader in concise form von Behring's views on the origin and suppression of tuberculosis.

The principal article is translated from a lecture delivered at Cassel, Sept. 25, 1903.

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Prof. Dr. CARL VON NOORDEN, Frankfort-a.-M. Authorized American Edition. Translated under the direction of Boardman Reed, M.D. Part IV. The Acid Autointoxications. New York: E. B. Treat & Co. 1903.

We are very glad to recommend this little book as presenting in English the best account of work done on acid autointoxications, especially that variety which relates to diabetes mellitus. The book should be read both by practitioners and students to ensure an appreciation of investigations now being conducted upon this subject.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, NOVEMBER 10, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

BLOOD CULTURES.

THE direct cultivation of bacteria from the blood is the most important aid which bacteriological science has recently put at the service of clinical medicine. The theories based on the results of this procedure or supported by them are fundamental in the modern conceptions of infectious disease, and when these results are positive they are the most conclusive factor in the establishment of a definite diagnosis.

Technically the taking of a blood culture is simple for one moderately well trained in bacteriological methods. Because of the certainty of contamination with bacteria from the skin the older method of drawing the blood into sterile wet or dry cups has been abandoned. The blood is drawn into a sterile antitoxin syringe from one of the larger veins about the elbow. The needle used is clean, new and rather fine. The rubber connection is short and heavy. The veins are moderately distended by firm pressure about the arm. These simple conditions fulfilled, the needle is easily inserted into the vein without preliminary dissection by one who has a moderate amount of dexterity. From 10 to 20 cc. of blood is taken and quickly transferred to the chosen culture medium, either solid in tubes and plates, or fluid, as the character of the case and the preference of the operator demand. To the patient the operation is no more severe than any hypodermic injection. An infection never follows and the opening in the vein is so small that there is never any leakage after the needle is withdrawn.

Through the use of this procedure it has become an accepted fact that there is always a specific general septicemia in typhoid fever and pneumonia. Infections with colon bacilli and paratyphoid bacilli have been recognized and at the same time the failure of the typhoid agglutination reaction in those cases has been accounted for. Unusual, unclassified general infection with other micro-organisms as the gonococcus, B. mucosus capsulatus, or B. aerogenes capsulatus, has been observed. The presence of a general but probably secondary streptococcic septicemia in scarlet fever and smallpox has been put beyond question.

As a diagnostic measure the blood culture gives definite rather than rapid information. The identification of the cultivated bacteria takes some time in most cases. Yet we have known of a case where in a central pneumonia the diagnosis was made from the blood before the physical signs developed. In the less usual infections this is the only certain method of diagnosis.

For the future it may be hoped that a careful comparison of the blood findings and clinical symptoms may lead to results in the rare infections. No opinion as to the value of streptococcic or pneumococcic anti-sera can have weight unless controlled by this method. No case of unexplained fever can be legitimately described as syphilitic or idiopathic until this procedure has failed to give result.

The study of cases by blood culture is feasible in private practice near laboratories, but must always be most practicable in hospitals. In the hospital its use in the routine investigation of fever cases should be encouraged with the expectation of acquiring still more definite knowledge and of making more accurate diagnoses.

FEWER MEDICAL STUDENTS.

SPEAKING of the diminution of medical students in New York City, *American Medicine* quotes Chancellor MacCracken of New York University as saying that both the city of New York and the state of New York have lost ground relatively in a shameful degree in their work for medical education. Statistics are adduced showing that, in spite of a very great increase of medical students in the United States as a whole, New York City has fewer to-day than twenty years ago. The reason for this is attributed to the fact that wealthy men have failed to contribute to medical education. We have recently commented on the diminution in the number of medical students at certain of our leading institutions, and have in general expressed the opinion that the decrease in numbers is due in great measure to the elevation of standard and to the consequent longer preliminary period

incident to the practice of medicine as a means of support. Although medical education may not be so well endowed as certain other branches, it is certainly true that a diminution in students, and hence in physicians, is due to much deeper and more far-reaching causes than the failure of wealthy men to give money for this purpose. As a matter of fact, large amounts of money have recently been given for objects distinctly allied to medicine, and in spite of this fact fewer students are undertaking a medical education. In the second place, it is surely not regrettable that fewer men are entering the profession, inasmuch as we may be sure that those men who do, under the increased requirements, are better equipped for their work than was the case twenty years ago. If we have finally succeeded in reducing the number of medical students through the abolition of inadequate short term courses which formerly were far too numerous, much has been accomplished toward the elevation of the medical profession at large. Mere statistics as to numbers, whether in New York City or throughout the country, cannot by any means give one an estimate of the actual work being done in medicine. There is certainly no danger that the profession will not be sufficiently manned, whereas overcrowding is a constant menace. We are interested, therefore, in the statement that New York has fewer medical students now than twenty years ago, a fact for which she is to be congratulated rather than criticised.

MEDICAL LESSONS OF THE EASTERN WAR.

It is reported that the army general staff has decided to send surgeons of the regular army to study the operations of the field hospital service of the Russian and Japanese armies in Manchuria. We understand that but one representative is to be sent to each army, which would seem an insufficient force to learn all that this war has to teach in relation to hospital work. If the reports which have reached us from the seat of war are to be credited, it is apparent that the Japanese army, at least, has suffered far less from disease than is ordinarily the case under the unhygienic conditions of camp life. Apart from occasional rumors, we hear very little of epidemic disease, usually so fatal in time of war. The lesson to be learned, therefore, like many medical lessons at this time, is one rather of prophylaxis than of treatment after the onset of disease. It is not to be questioned that the Japanese have introduced methods of immediate care for the wounded which are unique and which will have a wide influence in the future, but their main service has been to demonstrate that disease may be prevented. This lesson has always been peculiarly difficult for those in charge of the health of armies to learn. All experience goes to show that could epidemic disease, disabling, often fatal, be eliminated, the number of deaths from wounds in action would, except in the severest engagements, be relatively insignificant. It is said that from the latter part of April until Sept. 30, 1898, three hundred and forty-five deaths in action, or from wounds, occurred in the United States army, whereas two thousand five hundred and sixty-five deaths occurred from other causes. No doubt these figures express a somewhat false proportion, but the peculiar misfortunes which overtook our army in the war with Spain have, in the past, been only too often duplicated. Certainly, the fact that any deaths occur from preventable disease must always be in a measure a reflection on the medical management of an army. Japan is undoubtedly teaching the world lessons in this matter of prophylaxis, and we may well afford to send trained observers to investigate the methods which have rendered her army practically immune to epidemic disease.

MEDICAL NOTES.

Yellow Fever Expedition to the Amazon. — It is reported that the Liverpool School of Tropical Medicine is to send a second expedition to the Amazon. A previous expedition, sent under the auspices of this school, resulted unfortunately, in that Dr. Myers, one of the physicians in charge, died of the disease.

Visit of French Physicians to London. — One hundred and fifty French physicians recently accepted the invitation to visit London. Sir William Broadbent and others met the party at the railway station Oct. 15, and from that time until their departure, three days later, a round of medical and social functions took place, and many speeches expressive of professional fellow feeling were delivered. Much of the speech-making was in the French language.

Medical Graduates in Germany. — The following statistics given in the *British Medical Journal* as coming from Germany, are of interest in connection with the condition of medical education in that country: "Official statistics recently published show that in the twenty universities of the German Empire, the degree of Doctor of Medicine was conferred on 611 candidates in the academic year 1903–4. The

number in the previous year 730. The number of graduates in the several universities was as follows: Berlin, 26; Bonn, 36; Breslau, 24; Erlangen, 16; Freiburg, 26; Giessen, 10; Göttingen, 19; Greifswald, 37; Halle, 12; Heidelberg, 10; Jena, 17; Kiel, 50; Königsberg, 16; Leipzig, 101; Marburg, 19; Munich, 88; Rostock, 25; Strassburg, 30; Tübingen, 12; Würzburg, 30. Among the graduates were 23 foreigners, distributed as follows: Berlin, 7; Freiburg, 2; Königsberg, 1; Leipzig, 3; Marburg, 1; Munich, 4; Rostock, 1; Strassburg, 2; Wurzburg, 2. Nine of the newly-capped doctors were women, 2 of whom graduated at Bonn, 3 at Breslau, 1 at Freiburg, 2 at Halle, and 1 at Strassburg."

MEDICAL SOCIALISM. — The canton of Zürich, according to the *Medical News*, has carried the activity of the state to a remarkable length. It has decided to levy an annual poll-tax of 86 cents, to be called the Zürich Medical Tax. It will produce $100,000 a year, sufficient to maintain forty or fifty qualified doctors; and in return for paying the tax any inhabitant will be entitled to call in one of these doctors at any moment, to claim medical attendance free of charge all the year round. There is no great fear that the precedent will be followed in our own country, writes a correspondent of the *Pall Mall Gazette* of London, until the Zürich experiment has had plenty of time to be tried. The medical profession could, no doubt, be relied upon to oppose any such scheme. It is appalling to think of the burden that is likely to be thrown upon those unhappy forty or fifty Swiss doctors, if the people of Zürich are at all like our own. It is not only among rich people who have little else to do but to imagine themselves dying that panic-stricken desires for the doctor, on the occasion of the slightest ache or discomfort, are common; the domestic servant class is equally prone to this weakness. Unless the state doctors adopt a bearish repulsiveness of manner in self-defence, they will have work enough.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Nov. 9, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 53, scarlatina 14, typhoid fever 21, measles 10, smallpox 0.

NEW YORK.

GIFT TO NASSAU HOSPITAL. — Mr. George Arents has presented $1,000 to the Nassau Hospital, Mineola, L. I., where his son, George Arents, Jr., was treated after receiving serious injuries by the overturning of his motor car during the Vanderbilt cup race on Oct. 8.

APPROPRIATIONS. — In the city's budget for the year 1905, which was finally adopted by the Board of Estimate and Apportionmant at its meeting of Nov. 1, the Department of Health receives an appropriation of $1,259,391, an increase of $150,000 over that for 1904, and Bellevue and Allied Hospitals the sum of $614,800, an increase of $15,920.

A TRIBUTE TO AN AMERICAN HOSPITAL. — Sir Felix Semon, the eminent English throat specialist, accompanied by Dr. D. Bryson Delavan, the senior attending laryngologist, and Dr. George M. Lefferts, on Oct. 4, made a visit to the New Mount Sinai Hospital, where he was received by the superintendent, Dr. Goldwater, and members of the medical staff. After inspecting the buildings and its various modern appliances, he expressed himself in the following language: " This hospital is a tremendous advance over any hospital I have seen. It is the ' acme,' I might say, of hospital perfection. It seems that such accomplishment is only possible in this country, for surely it cannot be done in Europe. You are fortunate in having enormous wealth devoted to such commendable purposes."

INSPECTION OF HEALTH DEPARTMENT BY JAPANESE IMPERIAL MEDICAL COMMISSION. — The Japanese imperial medical commission which has been making a tour of observation of the health departments of the principal cities of this country and Europe visited the New York Health Department building on Nov. 1. The commission consists of Dr. Takamine, Professor of Chemistry in the Imperial University of Tokyo, Professor Tanva of the Department of Pharmacy, and Dr. Sato, chief surgeon. Health Commissioner Darlington personally conducted the distinguished visitors about the premises and explained the workings of his department, and Dr. Sato, speaking for the commission, expressed the opinion that the local department was better than in any other city that had been visited. It was equalled in its facilities, he said, only by the health department of Hamburg, Germany, but there the sanitary authorities were so hampered by legal restrictions that they did not have the liberty of action possessed by the New York officials.

A LOW DEATH-RATE. — It is officially announced that the death-rate for the week ending Oct. 29 was the lowest for any week yet re-

corded in the history of Greater New York. With an estimated population of 3,838,024, the death-rate was 14.46, and the corrected rate, excluding non-residents and infants under one week old, 13.69. For the month of October the death-rate was 15.81, as against 17.03 in September and 16.05 in October, 1903. The corrected rate was 14.95. This, it may be noted, is the first month in which lower mortality has been registered in 1904 than in 1903. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from whooping cough declined from 5½ in September to 2½ in October; the weekly average from epidemic cerebrospinal meningitis, from 15.75 to 12.75; from diarrheal diseases, from 227.5 to 92; from diarrheals under two years of age, from 192.75 to 84.75; and from cancer, from 57.5 to 48.75. Among the diseases which showed an increased mortality were the following: The weekly average of deaths from diphtheria and croup increased from 23 to 26.75; from scarlet fever, from 2.5 to 7.25; from typhoid fever, from 20.5 to 21.25; from pneumonia, from 53.75 to 68.5; from broncho-pneumonia, from 52 to 59; from acute bronchitis, from 18.5 to 22.5; from pulmonary tuberculosis, from 120.75 to 147.5; from Bright's disease and nephritis, from 95.75 to 98.75; and from organic heart diseases, from 65 to 87.75.

Obituary.

HELEN W. WEBSTER, M.D.

At the October meeting of the New England Hospital Medical Society, the following resolutions upon the death of Dr. Helen W. Webster, of New Bedford, were passed:

Resolved, That the New England Hospital Medical Society records with regret the death of one of its members, Dr. Helen W. Webster, of New Bedford.

An untiring worker, of genial and inspiring personality, she was a most effective pioneer in her profession. Her loss is deplored by a wide circle of her friends and colleagues.

Resolved, That this expression of appreciation be published in the Boston Medical and Surgical Journal, and that a copy be forwarded to her family.

Emma B. Culbertson, M.D.,
Elizabeth C. Keller, M.D.,
Clara J. Alexander, M.D.,
Committee.

The death of Dr. Helen W. Webster, at her home in New Bedford last July, has taken away from Massachusetts yet another of that band of pioneer women physicians who have been so prominent in the state's medical history. Dr. Webster was successful from the first in her chosen profession, in spite of the fact that she began practice when a most strong prejudice against professional women existed. Her skill and her devotion to her work, and her charming personality, however, helped her win her way on every hand, and enabled her to reach the honorable position in the medical world that she occupied at her death.

Dr. Webster, the daughter of the Rev. A. H. Worthing, was born in Boston in 1837, and received her early education at the Conference Seminary in East Greenwich, R. I. Upon leaving school she became a teacher in Fall River, but later gave up this work to study medicine at the New England Female Medical College, in Boston. She graduated from that institution just after the outbreak of the Civil War, and almost immediately entered the Hospital Service of the Federal Army. While thus engaged in Washington she met Surgeon William W. Webster, whom she married in 1868. At the close of the war she removed to Boston, where she was appointed Resident Surgeon at the Lying-In Hospital. She served there but a short time, soon returning to New Bedford, where she commenced private practice. While so engaged she was appointed Resident Physician and Professor of Anatomy and Physiology at Vassar College, and in order to prepare for this work she spent months studying in the hospitals of Paris and Dublin.

When she relinquished her professorship at Vassar, she returned again to New Bedford, where she resumed her private practice and carried it on uninterruptedly until 1893. A serious illness then forced her to give up her work, though after her recovery she resumed her practice, but was never able to do as much as formerly. She died on the 18th of July, after a brief illness.

Dr. Webster was a member of the New Bedford School Committee, the New Bedford Medical Society, the New England Hospital Medical Society, and the Dutchess County (New York) Medical Society. She was the first woman admitted to this last association.

Miscellany.

THE NEW BACTERIOLOGICAL LABORATORY OF THE BOSTON BOARD OF HEALTH.

The Boston Board of Health has recently moved its Bacteriological Laboratory from its old out-grown quarters in the Sudbury Building, where it has been since its establishment in 1898, to new and more spacious quarters on the top floor of the Boylston Chambers, 739 Boylston Street.

This building, which is situated about half way between Exeter and Fairfield streets is more conveniently located for the majority of physicians, and better adapted in every way for the technical side of the work.

The laboratory occupies the west wing of the

top floor of the Boylston Chambers and takes up that portion of the building formerly occupied by the chemical and biological laboratories of Simmons College.

The general office consists of a space for the public separated from the office proper by a section of wire fence and an oak counter. This counter was made to order. At its left end is a chute down which the used culture boxes, sputum outfits and the like can be dropped during office hours. Next to the chute is a lid which, lifted, shows a box containing fresh outfits. Next to the lid is a place for a block of writing paper, while at the extreme right of the counter is wrapping paper, twine, etc. A messenger sent from one of the culture stations scattered throughout the city can thus drop the used outfits down the chute, obtain fresh outfits, wrap them up, sign for the trip and depart without having taken up the time of any one connected with the laboratory.

The further and greater advantage of a chute for used outfits in place of an ordinary receptacle lies in the fact that it is impossible for messengers to make the mistake of taking out used outfits supposing them to be unused. Beneath the counter is a box to catch the outfits dropped down the chute.

At six o clock when the laboratory closes, the various outfits are sorted out (the diphtheria cultures put into an incubator, and the sputum boxes into a jar containing formaldehyde gas, in order to disinfect the outside of the bottle before further handling). A box to hold the fresh outfits and several drawers to hold the reserve stock of outfits are fitted into the back of the counter. Both the chute box and the drawers are open on the rear side so that the clerk can readily observe from his desk just how many outfits are contained therein. The rest of the general office is furnished with the modern office appurtenances. Here all the records are kept and all the reports to physicians made out. The telephone is attached to the clerk's desk and all urgent reports, especially positive results on suspected diphtheria cases, are telephoned directly to the physician.

To the rear of the general office is the private office of the technical staff. This contains, besides the desks, files, etc., the books, reprints and other classified information necessary to the intelligent carrying out of the work of the laboratory.

Next beyond the private office is the microscope room. This receives light on three sides. The bench space on the north side of the room is devoted solely to microscopic work, that on the west side to chemical work, while one bench is reserved for the work involved in the bacterial counts now being made on milk. A fourth bench is used for necessary mechanical work, such as glass blowing and the like. Two incubators are in use in this room, one for the routine incubations and one for the milk plates. The milk incubator is kept locked in accordance with legal requirements in cases of prosecution. The drawers in this room are in the form of shallow trays, are interchangeable, and when in position are shut out from the dust by a close fitting door. These cases of drawers are put under the center benches only, leaving the wall benches clear beneath. All the sinks are made of wood and are removable. The sinks drain into a common wooden trough such as is used for house gutters, this trough running to a slop sink which is trapped and vented in the ordinary way. Since the sinks are removable, they are not fixtures, and so do not require trapping, the slop sink only requiring to be trapped and vented. A special ruling was made by the authorities on this point. The great advantage of this system of drainage lies in the ease with which cotton, broken glass and other waste falling into the drains can be removed and the drains cleansed. Slop sinks and troughs are coated with asphalt paint which should be renewed annually. Other sinks and bench tops are coated with an aniline black preparation, the oxidation of the aniline taking place in the pores of the wood and making a very permanent finish which is practically acid, fire, and water proof. The incubators in this room are set upon a slab of Portland cement, thus reducing the danger from fire to a minimum. All bench tops are made of maple which is now no more expensive than hard pine. At one end of the room is a large board holding the various tools used about the laboratory. When one of these is removed for use, a painted outline giving a burnt wood effect shows that a tool is missing, and where to place it when it is returned.

To the right of the microscope room is the media room. In this room all the media used in the laboratory is made. Here also all the necessary cleansing of glassware, disinfection of the boxes, tubes, etc., from used outfits takes place. A large wooden sink standing in the middle of this room allows plenty of elbow room for those cleansing glassware, etc. Ice chests are provided in this room for the storage of media and the materials used in making it. At the further end of the room are two benches devoted exclusively to the apparatus for the sterilization of media and utensils. These benches are covered the entire length with Portland cement. Over these benches is an over-hanging hood connected with a large ventilating shaft which takes all steam and odors directly out of doors.

Leading from the microscope room and on the east of the private office is the animal room. The animal runs, cages and supports, hay and sawdust bins are all built of metal to allow for complete disinfection of the entire room. Both animal runs and cage bottoms are kept covered with sawdust and hay, which are often renewed. The animal runs are so built as to allow of complete flushing out. The lower part of the cages are so constructed that a sliding tray drawer holds all the sawdust, etc. The drawer can be removed, cleaned and put back without taking the animal from the cage. At the end of this

room nearest the window is an autopsy table. One drawer to this table holds all instruments, etc., necessary for this work, while the second one is for the card catalogue of animals inoculated. Over the table on a shelf are the solutions used. An odorless crematory connected with the ventilating shaft in the media room completes the animal room. Thus all animal work is confined to this one room.

The stock room has two doors, one leading from the animal room, the other from the main corridor of the building. Through this latter door, all supplies are brought directly into the stock room. Around the sides of the room are pine boxes, about the size of a sectional bookcase and arranged in the same manner. These boxes were used for moving glass-ware, etc., from the old to the new location and when unpacked were placed as described, upon their sides, open side facing out. By this method, a flexible system of storage is obtained, one that can be rearranged or added to at any time without the services of a carpenter. Also it is possible to see at a glance just how much stock is on hand.

Arrangement for late cultures. When the laboratory closes at 6 P.M., a panel in one of the corridor doors is raised, disclosing two chutes attached to an under panel, one to receive diphtheria outfits, one to receive sputum outfits and typhoid and malaria specimens. The diphtheria specimens drop directly through a trap door into an incubator, and receive, in spite of the delay in delivery, just the same treatment as cultures left earlier. The sputum and other outfits drop into a small box having a glass front. Both this box and the incubator are located at one end of the stock room. An electric light directly over the panel clearly outlines the directions and calls attention to the panel. The advantage of an arrangement like the above will be appreciated when one remembers that formerly a culture taken at 7 o clock in the evening often had to wait twenty-four to thirty-six hours before it could be reported on. By this method the report is ready the next morning. It is believed that this system is original with this laboratory.

The total cost of moving the laboratory together with the necessary gasfitting, plumbing, electric wiring and carpentering was in the neighborhood of seventeen hundred dollars. All this was done under the immediate supervision of the Public Buildings Department, so far as estimates, contracts, etc., are concerned. The plans followed were those of the director and his assistants. The lease was made and plans approved in April, 1904. The laboratory was occupied in August, without a day's interruption of the routine diagnostic or milk counting work.

During the fiscal year ending Jan. 31, 1904, 13,101 specimens were examined and diagnoses made. Of these, nearly 9,000 were for diphtheria and 3,000 for tuberculosis. A total of 72,732 examinations have been made since the laboratory was opened in 1898, besides much special work, a summary of which is given in the Annual Report for 1903.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 29, 1904.

Cities.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Diarrheal Diseases.
New York	3,908,644	1,064	306	23.78	15.97	1.60	1.50	5.38
Chicago	2,021,086	412	102	26.94	7.77	2.43	1.70	8.25
Philadelphia	1,407,968	407	93	23.09	13.27	4.42	1.72	5.16
St. Louis	653,606	—	—	—	—	—	—	—
Baltimore	542,229	182	42	22.52	10.99	2.20	2.75	2.75
Cleveland	444,261	—	—	—	—	—	—	—
Buffalo	409,645	—	—	—	—	—	—	—
Pittsburg	362,403	118	—	20.33	17.79	3.39	5.08	4.24
Cincinnati	338,277	—	—	—	—	—	—	—
Milwaukee	335,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	50	9	32.00	4.00	8.00	2.00	4.00
Boston	617,950	197	55	21.82	14.72	2.53	2.03	4.06
Worcester	136,925	35	12	11.43	8.57	—	2.86	2.86
Fall River	119,349	36	14	33.33	8.33	5.55	2.78	11.00
Lowell	104,402	18	8	22.22	5.55	11.11	—	5.55
Cambridge	100,998	30	7	9.00	9.00	—	—	—
Lynn	73,875	14	1	7.14	—	—	—	—
Lawrence	72,348	17	5	17.65	11.76	—	—	—
Springfield	72,020	12	4	16.67	—	16.67	—	—
Somerville	70,413	17	4	5.88	11.76	—	—	—
New Bedford	68,868	18	8	22.22	27.77	—	—	16.67
Holyoke	50,338	16	4	18.75	18.75	—	—	—
Brockton	46,601	5	2	20.00	—	—	—	—
Newton	39,310	8	1	—	—	—	—	—
Haverhill	39,061	9	4	22.22	11.11	—	—	11.11
Malden	37,205	9	4	—	—	—	—	—
Salem	37,188	10	1	10.00	—	—	—	—
Chelsea	38,499	11	3	—	—	—	—	—
Fitchburg	36,335	—	—	—	—	—	—	—
Taunton	34,577	12	3	—	16.67	—	—	—
Everett	30,209	8	3	25.00	—	—	—	—
North Adams	29,201	4	0	25.00	25.00	—	—	—
Quincy	26,798	9	3	11.11	11.11	—	—	—
Gloucester	26,131	2	—	—	—	—	—	—
Waltham	25,797	4	1	25.00	—	—	—	—
Brookline	23,576	4	—	—	—	—	—	—
Pittsfield	22,870	3	1	—	—	—	—	—
Medford	21,956	3	—	—	33.33	—	—	—
Chicopee	21,692	5	2	60.00	—	20.00	—	20.00
Northampton	20,314	3	0	—	—	—	—	—
Beverly	15,807	3	—	—	—	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	2	1	—	50.00	—	—	—
Adams	14,745	3	0	33.33	—	33.33	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,500	1	0	100.00	—	—	—	—
Newburyport	14,478	3	0	—	—	—	—	—
Woburn	14,315	2	—	—	50.00	—	—	—
Melrose	13,819	1	—	100.00	—	—	—	—
Westfield	13,809	4	2	75.00	—	50.00	25.00	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	5	0	—	—	—	—	—
Revere	13,509	3	1	66.67	—	33.33	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody	12,406	—	—	—	—	—	—	—
Gardner	12,324	2	—	—	—	—	—	—
Southbridge	11,716	3	3	33.33	—	33.33	—	—
Watertown	11,575	0	—	—	—	—	—	—
Weymouth	11,350	3	1	33.33	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 2,787; under five years of age, 708; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 641; acute lung diseases 358, consumption 321, scarlet fever 13, whooping cough 6, cerebrospinal meningitis 17, smallpox —, erysipelas 3, puerperal fever 6, measles 9, typhoid fever 49, diarrheal diseases 143, diphtheria and croup 74.

From whooping cough, New York 3, Chicago 2, Holyoke 1. From measles, New York 7, Chicago 1, Pittsburg 1. From scarlet fever, New York 8, Philadelphia 3, Baltimore 2. From cerebro-spinal meningitis, New York 10, Baltimore 2, Pittsburg, Boston, Worcester, Brockton, Weymouth, 1 each. From erysipelas, Providence 1, Boston 2.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Oct. 15, the death-rate was 15.2. Deaths reported 4,439; acute diseases of the respiratory organs (London) 94, whooping cough 31, diphtheria 69, measles 81, smallpox 1, scarlet fever 46.

The death-rate ranged from 5.1 in Tottenham to 27.2 in Merthyr Tydfil; London 14.2, West Ham 15.2, Brighton 12.4, Plymouth 21.0, Bristol 12.6, Birmingham 14.8, Leicester 12.3, Nottingham 14.0, Liverpool 20.4, Bolton 15.1, Manchester 16.3, Oldham 16.8, Halifax 14.1, Bradford 17.0, Leeds 15.9, Sheffield 17.3, Hull 19.5, Cardiff 8.3, Rhondda 19.2, Hornsey 8.3, Salford 20.3, Wigan 13.3.

METEOROLOGICAL RECORD.

For the week ending October 29, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 23	30.02	50	59	42	71	53	62	W	W	7	7	C.	O.	0
M.. 24	30.38	45	52	38	69	51	60	W	N E	12	4	C.	C.	0
T.. 25	30.36	52	63	41	78	85	79	S	W S W	12	15	F.	O.	0
W.. 26	29.98	50	59	42	87	64	76	S	W	6	20	O.	C.	.14
T.. 27	30.07	40	45	34	64	50	57	W	N	12	6	C.	C.	T.
F.. 28	30.38	38	46	30	60	64	62	N	W S	8	7	C.	C.	0
S.. 29	30.22	48	59	37	71	80	76	S	W S W	4	8	O.	C.	0
☞	30.17		55	38			67							.14

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING NOVEMBER 5, 1904.

DR. M. E. LANDE, appointed an assistant surgeon from Oct. 26.

G. G. HART, acting assistant surgeon. Ordered to Marine Barracks, Dry Tortugas, Fla.

R. L. SUTTON, assistant surgeon. Detached from the Naval Hospital, New York, and ordered to the "Massachusetts," Nov. 28.

DRS. C. K. WINN and HUGH DE VALIN, appointed acting assistant surgeons from Oct. 28.

A. J. GEIGER, assistant surgeon. Detached from the Naval Hospital, Yokohama, Japan, and ordered home.

SOCIETY NOTICES.

AMERICAN PUBLIC HEALTH ASSOCIATION. — The thirty-second annual meeting of the American Public Health Association will be held at Havana, Cuba, beginning Jan. 9 and continuing for five days. The final announcement will be sent out some weeks before the date of the meeting. It will give all necessary information concerning railroad rates, hotels, place of meeting, entertainments, etc.

BOSTON MEDICAL LIBRARY MEETINGS. — The Boston Medical Library in conjunction with the Suffolk District Branch of the Massachusetts Medical Society, will hold the following meetings during the season of 1904–5, at 8.15, at the Fenway: Nov. 16. Nephritis: Pathology, Prof. W. T. Councilman. Clinical Examination of Urine, Prof. E. S. Wood. Diagnosis, Dr. Richard C. Cabot. Nov. 30, Ptosis of the Abdominal Organs with Special Reference to the Kidney: Discussion. Dec. 7. The Humane Treatment of Malignant Disease from a Surgical Point of View, Dr. John C. Munro. Dec. 21, Nephritis: Medical Treatment, Prof. F. Pfaff. Surgical Treatment, Dr. Paul Thorndike. Prognosis, Dr. Frank Wells. Jan. 4, General Treatment of Appendicitis: Discussion. Jan. 11, Medical Charity, Dr. Geo. W. Gay. Jan. 25, A Study of Objective Methods of Diagnosis of the Stomach in a Medico-Surgical Clinic with Report of Cases, Dr. H. F. Hewes. Results of Surgical Treatment of Benign Disease of the Stomach, Dr. J. G. Mumford. Feb. 1, Results of Operative Treatment of Cancer in and about the Mouth: Discussion. Feb. 11, Physiological Economy of Nutrition, Prof. R. H. Chittenden, New Haven. Feb. 15, Recent Work on Etiology of Disease, Prof. W. T. Councilman. March 1, The Surgery of Renal and Ureteral Calculi: Discussion. March 8, The Present State of Opinion Concerning Sewer Gas and its Effects, Prof. Wm. T. Sedgwick. Nine Years' Experience in the Treatment of Diphtheria with Antitoxin at the South Department of the Boston City Hospital, Dr. John H. McCollom. March 11. Open. April 5, Cerebral and Spinal Surgery: Discussion. Notification of each meeting will be given in the BOSTON MEDICAL AND SURGICAL JOURNAL; those who wish a special notification by postal card will please notify Dr. Brigham at the Library. Light refreshments will be served at each meeting.

GEORGE W. GAY, FRED. B. LUND, ELLIOTT P. JOSLIN,
Committee on Medical and Social Meetings.

RECENT DEATH.

MORDECAI PRICE, M.D., died in Philadelphia, probably from apoplexy, on Oct. 29, at the age of sixty years. He was a graduate of the Department of Medicine in the University of Pennsylvania in the class of 1869, and for many years has been regarded as one of the most eminent surgeons in Philadelphia, particularly in relation to gynecology and abdominal diseases.

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheater of the Boston City Hospital on Nov. 11, from 10 A.M. until 12.30 P.M.: Amputation of Breast; Appendectomy; Plastic Operation for Hypospadias; Appendectomy.

BOOKS AND PAMPHLETS RECEIVED.

The Division of Surgery of the Medical School of Harvard University. Report of Research Work, 1903–1904. September, 1904. Bulletin No. III.

Twenty-third Annual Report of the State Department of Health of New York for the Year ending December 31, 1902. Also Maps, Parts I and II.

An Address delivered at the Unveiling of a Monument erected by the American Medical Association to the Memory of Benjamin Rush, in Washington, D. C., June 11, 1904. By J. C. Wilson, A.M., M.D. J. B. Lippincott Co.

Syphilis and Gonorrhea. By C. F. Marshall, M.D., Ch.B., B.Sc. Vict., F.R.C.S. Eng. New York: Rebman Co. 1904.

Blakiston's Quiz-Compends. A Compend of Medical Latin. Designed Expressly for Elementary Training of Medical Students. By W. T. St. Clair, A.M. Second Edition. Revised. Philadelphia: P. Blakiston's Son & Co. 1904.

Surgical Emergencies. The Surgery of the Abdomen. Part I. Appendicitis and Other Diseases about the Appendix. By Bayard Holmes, B.S., M.D. Illustrated. New York: D. Appleton & Co., 1904.

The Medical News Visiting-List. 1905. Philadelphia and New York: Lea Brothers & Co.

General Catalogue of Medical Books. Philadelphia: P. Blakiston's Son & Co.

Multiple Personality. An Experimental Investigation into the Nature of Human Individuality. By Boris Sidis, M.A., Ph.D. (Harvard), and Simon P. Goodhart, Ph.B. (Yale), M.D. New York: D. Appleton & Co. 1905.

The Finsen Light, X-Rays, and High Frequency Electrical Currents in Certain Diseases of the Skin. Another Year's Experience. By L. Duncan Bulkley, M.A., M.D. Reprint.

A Text-Book of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., B.Sc. Tenth Edition. Enlarged, Thoroughly Revised and Largely Re-written. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1904.

A Treatise on Bright's Disease and Diabetes, with Especial Reference to Pathology and Therapeutics. By James Tyson, M.D. Second Edition. Illustrated. Including a Section on the Ocular Changes in Bright's Disease and in Diabetes. By George E. de Schweinitz, M.D. Philadelphia: P. Blakiston's Son & Co. 1904.

The Art of Compounding. A Text-Book for Students and a Reference Book for Pharmacists at the Prescription Counter. By Wilbur L. Scoville, Ph.G. Third Edition. Revised and Enlarged. Philadelphia: P. Blakiston's Son & Co. 1904.

Accidents and Emergencies. A Manual of the Treatment of Surgical and Medical Emergencies in the Absence of a Physician. By Charles W. Dulles, M.D. Sixth Edition. Thoroughly Revised and Enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

A Text-Book of Clinical Diagnosis by Laboratory Methods, for the Use of Students, Practitioners, and Laboratory Workers. By L. Napoleon Boston, A.M., M.D. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Pathological Technique. A Practical Manual for Workers in Pathological Histology and Bacteriology, including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By Frank Burr Mallory, A.M., M.D., and James Homer Wright, A.M., M.D. Third Edition, Revised and Enlarged. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

A Text-Book of Histology, including Microscopic Technic. By A. A. Böhm, M.D., and M. von Davidoff, M.D. Edited, with Extensive Additions to both Text and Illustrations by G. Carl Huber, M.D. Second Edition, Thoroughly Revised and Enlarged. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

A Hand-Book of Surgery for Students and Practitioners. By Frederic Richardson Griffith, M.D. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Diseases of the Nose, Throat, and Ear and Their Accessory Cavities. By Seth Scott Bishop, M.D., D.C.L., LL.D. Third Edition. Thoroughly Revised and Enlarged. Illustrated. Philadelphia: F. A. Davis Co. 1904.

Original Articles.

THE DIFFERENTIAL DIAGNOSIS AND TREATMENT OF THE SO-CALLED RHEUMATOID DISEASES.*

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

THE paper which I have to present to-night is a report of work which has been carried on during the past twelve years, chiefly at the Orthopedic Department of the Carney Hospital, with the sole purpose of increasing our knowledge of the many features presented by the so-called rheumatoid diseases. It is not the work of one man, but the work of a group of men who have been, or who are still, connected with that department.

The work was made necessary by the presentation of a large number of patients, at the very opening of that department, who were suffering with, or crippled from, diseases of the joints, commonly classed as rheumatoid or rheumatic, the intelligent treatment of which demanded more definite knowledge of the nature of the disease than then seemed to exist. The subject has been approached from the clinical, the pathological, the bacteriological and the chemical sides, and that more has not been accomplished in this time can only be explained by the chronic character of the diseases, and the need of waiting years, at times, in order for the different stages in any given case to develop.

It is possible in the time at our disposal this evening to give only a brief outline of the results of this work with the present conclusions, leaving the detailed report of the various phases of the work for other and special publication.

It was at once apparent, as soon as many patients were seen together, that there were several distinct types of disease included under this general head, which were quite constant in their clinical course and in the pathological findings, and while it is not possible to entirely disprove any connection between these types, the suggestion is certainly very strong that they represent different diseases. Usually but one type exists in the same individual, but at times more than one may be present. When this does occur the types can be recognized, and practically always they have developed at such different periods and are so unlike in their appearance that the patient even recognizes the difference. That more than one type is present in a given case is, of course, no more to be wondered at than that pneumonia and tuberculosis or any other combination of diseases should be present in the same individual.

From the large general class of rheumatoid disease five types have been separated, the essential characteristics of which are here presented.

The first: The *chronic, villous arthritis*, or "dry joint," is very common, and is not a general disease at all, but represents entirely a local process with no tendency to progression. In using the term, chronic villous arthritis, it should be remembered that a villous change may take place in any inflammatory process in which a joint is involved, and that villi may develop in tuberculosis, in the atrophic form of arthritis, in the infectious arthritis, in the hypertrophic arthritis, and, in fact, in any condition in which there is inflammation or disease of the synovial membrane. In such conditions, the villi are simply a part of the general disease, and are present in connection with many other symptoms. In the simple chronic villous arthritis there are no general symptoms, and the local lack of tone with the folds of the relaxed membranes and the villi which form if the condition is of long duration are responsible for all of the symptoms. The terms most commonly used to describe this type of disease are the dry, the relaxed, or the hyperemic joint, and the chief characteristics are the crepitation, or creaking of the joint on motion, with varying degrees of pain and tenderness on use.

The condition is most commonly seen in the knee, and is very commonly associated with, and is undoubtedly in part due to, flat foot, the weakness there having resulted in strain and weakness at the knee. The muscular tone of the thigh and calf muscles is usually impaired, and the joint membranes, as a part of this lack of tone, become relaxed and passively congested. As a result of this the membranes are thrown into folds, and the crepitation is due to the rubbing of these folds or loose portions over each other. At times, under the continued irritation, the folds become more swollen, and fringes, or villi, result. When these are present they are found most commonly near the articular surfaces, and are undoubtedly due in large part to the membrane being drawn into the articulation during motion, this resulting in greater swelling, with consequently a greater liability of a repetition of the pinching of the fold or fringe in subsequent motion. It is in this way that symptoms of catching, and at times complete locking, in the joint are to be explained.

In such a condition the joint fluid is probably rarely, if ever, less than normal, so that the joints are not dry, and if the villi are numerous, so that on motion the irritation or catching is marked, the internal trauma which results may be followed by a marked increase of the fluid, the same as would result if the trauma were received from the outside. The cause for this excess of fluid, therefore, is purely mechanical, and is not due to a general disease or to any chemical or diathetic condition. It is absorbed under compression and quiet, and reappears again if the irritation is continued.

When such a condition has been present for any considerable length of time degenerative changes take place, and tissues of a higher type are replaced by tissues of a lower. The change most commonly seen is the fatty degeneration of the villi, so that the ends of the villi as they are frequently seen are made up of distinct lipomata. At other times a considerable fold of membrane may undergo the same change, or several villi

* Read at the annual meeting of the Suffolk District Medical Society, April 30, 1904.

may join, and the so-called "lipoma arborescens" result. Covering these there is usually a mere film of membrane as the remnant of the original synovial tissue. When these lipomata are present as large masses, they are most commonly seen just above and to the outside of the articular surface of the femur, and just below the patella in the fold of membrane under the patella tendon. As villi they may be found anywhere, but always most numerously about the articulation. At times a calcareous degeneration is seen, and in the folds of the membrane, entirely removed from the normal articular cartilage and bone, small cartilaginous or bony masses are found, and it is probably in this way that many of the so-called "joint mice" develop.

The treatment of such a condition naturally consists in improving the tone of all the joint structures concerned in the action of the joint. The muscles above and below the joint should be developed, and for this purpose massage in its various forms, with stimulating bathing, is of benefit, together with any form of muscular exercise in which the joint irritation is not increased. If flat foot is present, or if there is any other definite source of strain or weakness, this should, of course, be corrected. All forms of use, such as stair climbing and hill climbing, which tend to increase the irritation, should be avoided. For the joint itself, stimulating bathing, gentle massage, "sweating" with rubber dam, electricity, hot air, etc., are all of advantage in improving the nutrition and tone of the part. During exercise, flannel bandages, the adhesive plaster strapping, or some similar form of protection is of benefit, by controlling the extremes of motion and thereby lessening the irritation and danger of the membranes catching in the articulation. If the villi or the lipomatous change is marked so that either of these conditions represent definite sources of mechanical irritation within the joint, and if after a reasonable period of bandaging and bathing the symptoms due to these features persist, they should be removed by operation. After such an operation the normal function of the joint should be expected, as the disease is not a progressive one, and as there are no destructive changes in which the bone or cartilage is involved.

The second type: The *atrophic arthritis*, or, as it was designated in the earlier papers, rheumatoid arthritis, is a progressive disease resulting in marked distortion and great crippling, with the essential pathological feature one of atrophy in which the joint membranes, the cartilage, the bones, and in the exposed joints, even the skin, all show the change. It is because of this atrophy which is such a constant factor that the term atrophic arthritis is used, and it represents an attempt to use terms for which there is some scientific reason.

The disease is characterized in the beginning by swelling of the affected joint (Fig. 1), this representing an increase in the synovial fluid, with, at the same time, an infiltration of the membranes and the periarticular structures. At this time or in the very beginning of the disease, the joint structures show signs of atrophy, and this can usually be demonstrated even thus early with the radiograph, the absence or the partial absorption of the cartilage between the bones showing clearly. As the disease progresses the atrophy becomes more marked, until it is shown by all of the structures involved in the articulation (Fig. 2), and at times the bones are so much affected that one telescopes into the other (Fig. 3), or dislocations or other deformities result. The small atrophied joint (Fig. 4), in the end result, is in marked contrast to the hypertrophic type. In the stage of swelling there may be a distinct villous change of the synovial membrane, but this disappears as the atrophy develops, unless the disease is arrested before it reaches that point.

The disease is a slowly progressive one, the extension going on gradually for many years. It may attack several joints in the beginning, or it may be entirely confined to one joint and remain as a non-articular process for several months before the signs of progression appear. The large or small joints may be the first affected, but the finger joints are almost always affected very early in the disease. In the fingers the first row of phalangeal articulations are affected before the others, forming the spindle-shaped swellings, but the last row, even though they may ultimately become ankylosed and go through all the changes of atrophy, rarely appear swollen. (Fig. 1.) Any or all of the joints may be affected as the disease progresses, and the jaw is frequently involved, resulting in difficulty in the mastication of the food and consequently interfering with the nutrition.

The étiology of the condition is not known. Some of the features strongly suggest a trophic change, as if the condition were due to some lesion of the nerve centres, but as yet there are no pathological data to support such a theory. The examination of the blood usually shows little abnormal. There may be a slight anemia, but this is not marked, the secondary anemia which is seen in the infectious arthritis not appearing in this type. The lymphatic glands are not enlarged.

The treatment is the treatment that would be suggested by the pathological condition as it is found. Anything that will improve the general tone or tend to lessen the progressive atrophy is of value. Tonics, fresh air, stimulating bathing, forced feeding, massage and all other similar measures should be encouraged. The diet should be a generous one, and meat should be an important factor, whether red or white being immaterial. In general the patient should be given as much food as can be digested. It should be borne in mind during the forced feeding that as the result of the general inaction the eliminative functions are apt to be sluggish, and for this purpose large amounts of water should be given, and possibly some mild alkali. At times the salicylates are of benefit, but if used it should be remembered that large doses depress and therefore do harm, while small doses, such as five grains once or twice daily, will give relief if the drug is to exert any

FIG. 1. — Atrophic arthritis: showing the spindle swellings of the early stage.

FIG. 2. — Atrophic arthritis: showing the general bone atrophy with the absorption of the articular cartilage between the bones.

FIG. 3. — Atrophic arthritis: showing the absorption of the cartilage with the telescoping of the bones at the metacarpo-phalangeal articulations.

FIG. 4. — Atrophic arthritis: showing the small ankylosed joints as the end result in the severe cases.

FIG. 5. — Hypertrophic arthritis: showing the Heberden's nodes.

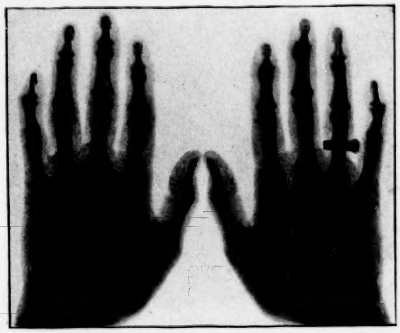


FIG. 6. — Hypertrophic arthritis: showing the hypertrophy at the edge of the articular cartilage in the distal row of articulations.

FIG. 7. — Hypertrophic arthritis: showing the hypertrophy at the edge of the articular cartilage.

FIG. 8. — Hypertrophic arthritis: the thickening at the edge of the cartilage of the ulna explaining the limitation of motion.

FIG. 10. — Hypertrophic arthritis.

FIG. 9. — Hypertrophic arthritis in the hip — or malum coxae senilis.

FIG. 11.—Hypertrophic arthritis: showing the fusing of some of the vertebræ with the lipping of the cartilage in an intermediate joint.

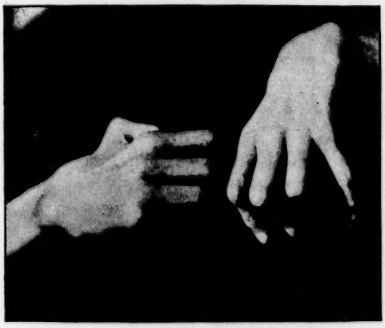


FIG. 12.—Infectious arthritis.

FIG. 13.—Infectious arthritis: showing a long existing lesion in the index finger without atrophy of cartilage or bone.

FIG. 14.—Infectious arthritis: showing a process having gone on to ankylosis without atrophy or hypertrophy.

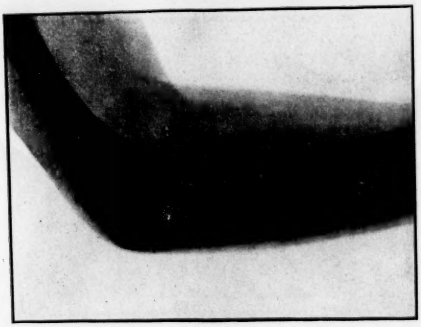


FIG. 15. — Infectious arthritis: showing the result after severe type with suppuration.

FIG. 16. — Chronic gout: the urate of soda deposits resembling the hypertrophic nodes.

FIG. 17. — Chronic gout: the bone change showing best in the index finger with the complete destruction of the last phalanx of the middle finger.

FIG. 18. — Chronic gout: showing the destruction in the shaft of the bone and also the bone adjacent to the joint — the fifth metacarpo-phalangeal.

influence. Locally, the treatment is entirely stimulating, with the encouragement of use, stimulating bathing, hot air, massage, and anything that tends to improve the nutrition or circulation of the affected part. In order to make use of the affected part more possible, light bandages, and at times splints, may be of assistance. If adhesions have formed, or if deformities have resulted, they should be overcome, and an attempt made to restore the part to as near its normal condition as possible.

The prognosis in this type of disease, if the environment can be controlled, and if the general treatment can be carried on for a sufficient length of time, is fairly good. In a considerable number of cases the disease can apparently be arrested; in many of the others, while the arrest of the disease does not seem to be possible, its virulence can be greatly modified.

The third type: The *hypertrophic arthritis*, or, as it was designated in the earlier papers, the osteo-arthritis, may be either a local or a general process, and is characterized by a thickening at the edges of the articular cartilages or at the attachment of the ligaments, forming ridges or nodes which become ossified, and interfere in varying degrees with joint motion. As the process extends, the ends of the bones forming the articulation usually become sclerosed and are much more dense than normal; and with this the central portions of the articular cartilage at the points of pressure may be absorbed, representing apparently a process analogous to the decubitus seen in other parts of the body from continued pressure. The essential feature of this type of disease is hypertrophy of the cartilage and bone. It is for this reason that the new term is used.

In the finger joints the Heberden's nodes are the type. (Fig. 5, Fig. 6.) In the knee (Fig. 7), elbow (Fig. 8), hip (Fig. 9), shoulder, or other similar joints, motions are limited by the presence of the thickened bone, and there is, as a rule, little discomfort unless the part is used enough to cause pressure upon this newly formed tissue. At times the thickening is so great as to press upon the nerves passing through or over this area, and results in severe pain. In the spine the process usually starts in the cartilage and follows the anterior lateral ligament upon one side (Fig. 10) more than the other, at times simply limiting motion by the presence of the nodes, at other times actually fusing the vertebræ together with a complete ankylosis. (Fig. 11.) With the thickening which goes on at the front of the spine, there is usually some thickening or swelling which extends around to the side, and not infrequently this presses upon the nerve roots with resulting referred pain. As the process is always more active upon one side than the other the referred pains are usually one-sided, and many of the persistent sciaticas, the intercostal neuralgias, or the brachial neuralgias are to be explained in this way.

In connection with the spinal process, the costo-vertebral articulations are frequently involved with resulting acute pain upon coughing, sneezing or sudden movements of these joints, and with frequently complete ankylosis of these articulations as the final result. This interference with the use of the upper portion of the lungs in respiration renders them more liable to tuberculosis, and consequently is an important factor in the prognosis.

In any of the joints during the active or irritative stage the synovial membranes are thickened and may undergo the villous formation. If this is so, as is true wherever the villi form, they are most numerous near the articulation, and with the swelling which results the membrane at times extends in or over the cartilage, forming a pannus, and wherever this persists for any length of time in this or in any type of joint disease, the cartilage under the pannus is more or less absorbed.

The etiology in this type of disease is not known, but cold, exposure, strains or other injuries are undoubtedly factors of importance. The examination of the blood shows no special change, nor does the analysis of the urine.

The treatment consists of fixation, or at least protection of the affected part during the active or painful stage, with the idea of preventing the irritation which would result mechanically in the use of the part. In the spine jackets or braces at times are necessary to control the movement; in the mild cases webbing or canvas belts or corsets may be sufficient. In the hip complete fixation, such as can be obtained with a plaster of Paris spica bandage, may be necessary, or flannel bandages or other milder measures may, at times, give the needed support. In the other joints the same principles are involved; in the severer cases, complete fixation; in the milder ones protection or guarding of motion. During the active stage, aside from the fixation and protection, such treatment as tends to lessen the irritation and inflammation is of advantage. The hot air, hot bathing, "sweating" with rubber and such measures undoubtedly relieve and hasten recovery. After the acute process has subsided in certain of the joints, it is possible and desirable to remove the thickened nodes in an attempt to restore the joint to its normal function. In the elbow and knee this is most often desirable. In the hip, the amount of thickening usually makes it better, if operation is to be considered, to remove the entire head of the femur, rather than to attempt to remove the individual nodes.

Internal treatment is of comparatively little importance, except as symptoms arise or as the eliminative functions need supervision.

The fourth type: The *infectious arthritis* is by far the most common, and includes most of the cases commonly spoken of as acute or chronic rheumatism and as septic arthritis, as well as many formerly spoken of as arthritis deformans.

This type of disease apparently results from the presence within the body of some infectious organism, the symptoms being due either to the presence of the organism itself within the joint, or to some toxin produced by that organism in some other part of the body. It may result from

practically any of the infectious or pus-producing organisms, and the type of the lesion or its character will naturally depend upon the special organism involved. The disease may be mild and of short duration with a complete recovery, or it may be severe with much suffering and at times fatal termination. One joint may be affected, and if so the disease in this joint may be very slight or may go on to considerable destruction of the articulation. On the other hand, many of the joints may be involved; at times all of the joints in the body, and, as when the single joint is affected, there may be severe, permanent changes, or the disease may soon be over, leaving little to show for its presence.

In this type of disease the onset is usually abrupt, at times symptoms of great acuteness resulting within a few hours. At other times the process is more insidious and gradual, some weeks being required for its development. It is, however, quite characteristic of this general class of disease, whether mild or severe, of abrupt onset or gradual development, that the joints that are affected become so at practically the same time, there being very little tendency to the progression of the disease or later involvement of the other joints, in marked contrast to the steady progression seen in the atrophic type. In the cases in which there is progression or later manifestations of the disease, the manifestations are in the nature of acute exacerbations, due undoubtedly to the liberation of a fresh supply of the toxin from the original or some other source.

With this type of disease the symptoms are those of an infection, the elevated temperature, the acceleration of the pulse, the general enlargement of the lymphatic glands and the spleen, the increase in the leucocytes in the beginning, with the secondarily developing anemia, together with the joint condition in which the swelling and appearances are of an inflammatory nature, all suggest such a theory. The severity of the symptoms naturally depend upon the severity of the infection.

At times the organism itself may be present within the joint, and whenever this is the case the symptoms are much more severe, and not infrequently marked destructive changes result. Here as with practically all of the other features, the extent of the destruction depends upon the organism present. Occasionally, in a given case, many of the joints may show the changes, suggesting a toxemia, but in some one or two joints the organism itself may be present, producing in those joints the more serious destructive changes, while the other joints in which the symptoms were those of a toxemia recover with less, or entirely without, impairment of the joint function.

The result of the infection in a given case must necessarily depend upon the organism from which the infectious element is absorbed. Any organism may apparently cause such changes, and undoubtedly there are many others yet to be discovered which are responsible for the symptoms in certain cases. If due to the typhoid bacillus, the joint process may consist simply of a toxemia with a slight increase of temperature, with a serous exudate into the joint, and with recovery in a short time leaving no permanent change in the joint function. The same organism may, on the other hand, be present in the joint in pure culture causing severe destructive changes, resulting in deformity showing in the spine as a well-marked kyphos.

That which is true of the typhoid bacillus is true also of the other organisms. The pneumococcus, the streptococcus, the staphylococcus, the gonococcus, the influenza bacillus, the dysenteric bacillus, etc., may all produce a toxemia with joint changes which would be in keeping with such a condition, or they may be present in a given joint in pure culture, producing more serious lesions. The pneumococcus and the streptococcus, as is true with the typhoid bacillus, may cause marked destructive changes of the bones as well as of the soft parts. The gonococcus, on the other hand, rarely leads to bone changes, but is associated with much thickening of the capsule and interference with joint function. It is possible that a similar condition may result from the tubercle bacillus, but it seems more probable in the tubercular cases that the joint symptoms suggesting "rheumatism" are due to toxins which result from some of the other organisms which are almost always present with the tubercle bacillus (the so-called mixed infection) in the last stage of tuberculosis, the stage when the so-called rheumatic symptoms are most seen. It is also possible, and indeed probable, in the light of recent reports, that organisms have been found or will be found which will explain some of the cases which, up to the present time, have been shown to be undoubtedly infectious, but in which the definite organism was not known.

In infectious arthritis, the pathological process is a local inflammation; the joint is swollen; the capsule, if the inflammation has lasted for any length of time, is thickened, giving the spindle-shaped swellings in any exposed joints (Fig. 12), but with practically no change in the bone or cartilage (Figs. 13 and 14), unless the process is of the destructive nature, in which case the mere extent of the destruction would make the recognition of the condition easy, or unless with the swelling of the membranes a pannus has formed extending in over the edge of the cartilage, in which case the cartilage under the pannus may be absorbed. The bones are of normal density; the cartilage is present and of normal thickness, and although the joints may be ankylosed, the ankylosis is due to the adhesions which have resulted as a part of the inflammation. (Fig. 14.)

In case there are the more destructive changes, in the repair there may be new bone formed about the joint and true ankylosis result, but the appearances are entirely different from the atrophic or rheumatoid arthritis, and also the hypertrophic or osteo-arthritis, with which, because of the marked thickening, the condition in this stage would be most apt to be confounded. In infectious arthritis the new formation of bone is similar

in every way to the new formation of bone which follows a septic ostitis or periostitis. It is not a thickening of bone at the edge of the cartilage, but thickening or growth of bone at the point of infection wherever present, with complete ankylosis in the severe cases (Fig. 15.)

The blood in infectious arthritis in the beginning and during the active stage shows an increase in the leucocytes with usually a high percentage of hemoglobin. As the disease progresses and the acute symptoms subside the increase of the leucocytes gradually disappears, and the percentage of hemoglobin becomes less, so that in the later stages of the disease a secondary anemia is almost invariably present.

The lymphatic glands are almost always somewhat enlarged in the beginning of the process, and this enlargement remains until the toxemia has been overcome, when it gradually and entirely subsides.

The urine is not peculiar unless the infectious process be quite profound, in which case the characteristics are simply those of a septicemia, and what is true of the kidneys is true also of the other organs.

The treatment of infectious arthritis must be considered in two parts, that which pertains to the general condition and that which is required for the local process. It is of the first importance to keep up the general health as much as possible, and for this purpose all the details of general care should be observed, as they would be carried out in a case of septicemia. In the very beginning, if the disease be acute, with much fever, naturally the diet should be restricted, but after this period has passed it should be wholesome and generous, with the idea of increasing the general strength and nutrition as much as possible. In the mild cases, with good general care, recovery may take place entirely without the aid of drugs, but if drugs are to be used tonics and reconstructives are indicated. In the early stages in many of the cases salicylic acid or some of its compounds will be of distinct help to relieve pain, but in case this drug is to be used it should be borne in mind that in many of the cases it affords no relief whatever, and also, if it is to be of help, that the improvement will be noticed within a short time. It should also be borne in mind that although it relieves pain it is a distinct depressant, disturbing both the action of the heart and the digestion, and if continued for any considerable length of time is distinctly harmful. For this reason, in case salicylic acid is to be used it should not be continued for more than a few days, after which in the majority of cases it is possible to entirely dispense with it, using instead some of the simple alkalies. At the same time the use of large quantities of water internally is of advantage as it is undoubtedly essential that the eliminative functions, both from the kidneys and the bowels, should be kept as near the normal standard as possible. Aside from this, the medication should be planned with reference to the infection, and tonics and reconstructives should be used freely with fresh air, stimulating bathing, and any such measures as improve the body tone.

For the local treatment in the active stage there is comparatively little to be done other than to protect the affected joint, and by means of hot applications, either moist or dry, liniments and such remedies, to relieve the discomfort as much as possible. If the process be acute, fixation will undoubtedly give relief, and this can be accomplished by the application of some form of splint, or a pillow folded about the leg and held with straps. At times complete fixation is necessary, in which case the plaster of Paris bandage is the most satisfactory. In arranging the position of the joint during this active period, the danger of contractures or dislocations should be borne in mind, and after the inflammation has passed, in case any stiffness or impairment of use remains, passive motion, manipulation and massage should be used in order to restore the joint to its normal function as soon as possible. In case the joint lesion represents a toxemia the recovery is rapid, so that within a week or two the acute symptoms have passed and motion should be encouraged. If the infection prove to be of the more serious type in which the organism itself is present in the joint, more radical measures are frequently indicated. The infiltration of the capsule seen in this more severe type of the disease and which is responsible for the impairment of motion in many of the cases, particularly those due to the gonorrheal infection, does not take place to any marked degree until after the first three or four weeks. Up to that time the infection and swelling are confined largely to the joint itself. For this reason, if the improvement is not marked at the end of the first three or four weeks, in case only one or two of the joints are involved, they should be opened and thoroughly washed out. The same principle holds in the cases of this nature in which many joints are involved, but as in these cases the virulence of the process is less severe, measures as radical as incision are rarely necessary. In some cases, especially those due to the presence of the pneumococcus or the streptococcus, the symptoms may develop so rapidly and indicate so definitely an active septic process in the joint that there can be no question but that the joint should be opened at once and thoroughly drained, it being frequently possible in this way to prevent the marked destructive changes which otherwise would take place.

In many of the cases of infectious arthritis and even those which are quite mild, after the acute swelling and sensitiveness has passed, instead of the joint returning to its normal size and function some swelling persists and the joint remains sensitive, weak and uncertain for an indefinite period. This condition is due to the villous arthritis or to the fact that in certain cases the fibrin in the synovial fluid is precipitated, and after the swelling goes down these masses of fibrin remain and act within the joint as foreign bodies, producing irritation and symptoms exactly as would any other foreign body. Both of these conditions should be definitely recognized, and removed if necessary.

If, as is not infrequent, the patients are seen

for the first time after the acute symptoms have passed and after the thickening of the capsule has resulted, and the contractures or the other undesirable features have taken place, an effort should be made to overcome them; and every possible effort made to restore the joint to as nearly as possible its normal condition.

The fifth type: *Chronic gout* is less understood than the other types because much less common, and no attempt is made in designating it to use more than a descriptive term, the pathology being too little understood. In the few cases studied the essential characteristics are the same, the chief ones being deposits of the urate of soda in the soft structures about the joints, with some bone absorption adjacent to the deposits.

The disease is usually slowly progressive with periods of acute exacerbation, the intervals between the attacks varying greatly; and during these intervals the progression of the disease ceases. With each exacerbation the symptoms may reappear in the part previously affected, or may appear in some new region. The disease seems to be entirely different from the more common conditions known as acute gout, in which the process is much more acute, the great toe joint being the part commonly affected and with no permanent changes resulting. The deposits when present may resemble or suggest the nodes seen in the hypertrophic form (Fig. 16); but instead of being attached to the bone and being firm to pressure they are soft and can be moved about in the soft structures entirely without connection with the bone. After the deposits have become of considerable size they soften down and discharge, much as a tubercular abscess is formed, and the discharge from these openings, which looks like tubercular pus, is made up entirely of the urate of soda. While this deposit is forming or is being discharged from the various sinuses, the elimination of the urea by the kidneys is naturally decreased in amount.

Of the bone changes the lesion is a local one, but considerable portions of a given bone may be affected, so that in the fingers or toes almost an entire phalanx may be destroyed. The process involves only a small portion of the bone at a time, gradually extending into the rest of the shaft, and when first seen the destroyed portion appears sharply defined (Fig. 17), as if punched out, looking not unlike the appearance of the bone in the syphilitic dactylitis.

The shaft of the bone or the ends may be the portion first affected, but if the end of one bone is affected the end of the adjacent bone is also usually affected, resulting in the destruction of the articulation. (Fig. 18.) In this latter condition the appearance in the radiograph suggests at first glance the atrophied and disintegrated bone of the atrophic type, but on close inspection the difference should be apparent. It is not a simple atrophy, the bone being thin with the preservation in large part of the outline, but is a destruction or disintegration of the bone, so that there is none there to preserve the outline.

When seen in the shaft of the bone, the process may start in one side, or work in from both sides, and in either manner the whole of the affected shaft may be destroyed. (Fig. 17.) The disintegrated bone is thrown off through the sinuses which are always present where such a process is going on, from which in the beginning the pure urate of soda was discharged.

In the repair of such a condition after the acute attack is over the deposits cease to form, and the joints or bones which have been affected, while always imperfect, yet, nevertheless, do soon recover and are of much greater use for function than one would suppose.

The etiology of these cases is not known, and comparatively little is known in regard to the treatment. It represents a type which apparently must be recognized, but about which much work must be performed before the cases can be treated intelligently. Rest in bed during the active part of the attack is desirable, and the quiet with any form of local warmth to the affected part relieves the pain. "Sweating" with rubber tissue or flannel seems to be particularly helpful. The diet should consist largely of liquids and soft solids during the acute stage, with forced feeding after the attack is over. All during the acute stage large amounts of water should be taken to correct the scanty flow of urine, which is always a feature at this time, and at regular intervals thereafter the amount of the urine should be watched, as before the onset of an acute attack the quantity is diminished and can be corrected by increasing the amount of liquid ingested. The diet should in general be a nutritious one, and if the eliminative functions are kept at the proper standard there is no reason why meat or other nitrogenous foods should not be used.

For drugs, colchium or the salicylates seem to be the most valuable to cut short the attack, after which tonics are indicated.

ARTHRITIS DEFORMANS.*

BY E. H. BRADFORD, M.D., BOSTON.

THE need of a thorough investigation of the chronic non-tubercular affections of the joints has for a long time been evident. The confusion in the literature of the subject is in itself a sufficient evidence of this. It is, however, a question in the present state of our knowledge whether a generally accepted terminology is possible. As the subject is looked at from different points of view and as the pathology as yet is not understood, an agreement in opinion among observers has not yet been reached.

Although in the past year a number of cases, nearly a hundred, have been under careful observation by the staff at the Long Island Hospital in Boston, great difficulty was encountered in classifying the cases observed, sharply, in the subdivisions of atrophic and hypertrophic. The cases were typical ones; many of them, before taking refuge in the Long Island Hospital, had

*Read at the annual meeting of the Suffolk District Medical Society, April 30, 1904.

drifted from one institution to another and had undergone various methods of treatment with varying benefit. Some had apparently gone through different stages in their gradual downward course. In a few, post-mortem examinations were thoroughly made by Dr. McGrath, Dr. Nichols and Dr. Richardson; in some, all of the joints being examined, showing various stages of progress; several in both macroscopical and microscopical studies were made.

A full report of the results of these observations will be made later by Dr. E. H. Nichols and Dr. F. A. Richardson. From the cases seen it appears that although there are several variations in the symptomatology yet the general type is a clearly recognizable one, especially among the old, the variations being perhaps due to varying resistance of certain tissues or the differing strength of the exciting cause. The changes affect the fibrous tissue about the joint, *viz.*, capsule, ligaments. In some instances these are limited to a a fibrous degeneration; later, ossification takes place with the formation of exostoses or enlargements of the bone. Effusion, thickening of periarticular tissues, atrophy, the development of fibrous growths of the synovial membrane, ulceration of the cartilage, either from degeneration or from pressure, eburnation of bone, are all observed. In some cases the existence of a virus, either as a contributory or exciting cause, *viz.*, gonococcus, was known; and in many, a toxin as yet unknown seemed probable. In most of the cases the patient appeared to be suffering from the effects of a systemic disturbance attacking different parts of the body, though to a greater degree in some than in others. An analogy to what occurs in arterio-sclerosis suggests itself, and the probability that the affection in question may be an auto-infection from defective metabolism, developing a fibrous degeneration of the cartilages, capsule and periarticular tissues, which develop at a later stage bone elements, bone structure, bone thickening and deformity, and in the earlier stages merely a loss of elasticity in the tissues involved, with slight alterations in the structure of the bones.

Under this explanation various causes may be supposed to excite in different systems similar results, but for successful treatment the existence of the faulty metabolism will have to be recognized.

In terminology the introduction of confusing terms is, of course, to be avoided. The terms "rheumatoid" and "chronic rheumatism" though strongly intrenched by usage are open to criticism as suggesting a kinship with acute articular rheumatism. The term "arthritis deformans," introduced by the great generalizer Virchow, has the advantage of being clinically descriptive of a process which, if unarrested, always deforms. This does not assume a pathological basis as yet undetermined, and does not prevent necessary subdivisions as the type of ossification or of fibrous alteration takes place.

The affection is remarkably chronic, is subject, like arterio-sclerosis, to arrest or amelioration of symptoms, and it is difficult to be certain as to the permanent benefit of treatment except in cases watched for years; but it is clear that cases can be helped for a time at least, and in all probability in some instances permanently, by appropriate treatment.

It is to be confidently expected that the investigations of Dr. Goldthwait and his associates will be fruitful of great benefit in the future as they have been in the past.

CHRONIC JOINT DISEASE.*

BY HENRY JACKSON, M.D., BOSTON.

In recent years advance has been made in two directions in our study of chronic joint diseases, first in nomenclature in that we are now inclined to drop the word rheumatism. We have long known that the chronic joint diseases under discussion to-night were not intimately related to acute rheumatic fever with involvement of many joints, yet the name "rheumatism" has been retained in speaking of the various chronic processes.

As to the adoption of definite names for the various forms of disease in the joints, chronic in nature, I am not so sure that we can as yet with any degree of certainty be too dogmatic.

In many cases it is difficult, perhaps impossible, even by x-ray examination, to determine the exact pathological condition in a given case. In fact the investigations of Dr. Nichols prove that several essentially different pathological processes may be the cause of chronic joint diseases that present identical, clinical conditions.

For the present at least I should favor the retention of the old name "arthritis deformans," as it is a term suggestive of a marked clinical feature, whereas osteo-arthritis is descriptive of a pathological condition, and may easily lead to confusion with another and probably entirely different process, osteitis deformans.

Rheumatoid arthritis is harmless as it merely suggests a disease similar to but different from rheumatism.

I think we must still leave a place in our nomenclature for "chronic rheumatism." There are cases of long continued joint disease that are acute or subacute in onset, yet last sufficiently long to deserve the name of chronic rheumatism. I say this with full knowledge of the fact that the chronic forms of disease under discussion to-night are liable to acute or subacute exacerbations with fever, hence may closely simulate acute polyarticular rheumatism.

The first type of the class spoken of by Dr. Goldthwait, chronic villous arthritis, may be extremely difficult to differentiate from chronic joint disease which has followed a slight and apparently harmless accident. As for instance the long cases of joint disturbance which follow a slight twist of the knee in playing tennis or skating. I suppose the pathological condition to be practically identical in chronic villous arthritis,

* Read at the annual meeting of the Suffolk District Medical Society, April 30, 1904.

and the cases here spoken of which follow an injury.

The cases of infectious arthritis present a large and very important class. It is my experience that in this class of cases we find the most intense pain, and unfortunately have no specific as salicylate of soda to relieve our patient. I think I have never seen more acute pain than in severe cases of gonorrheal and acute syphilitic joint disease. There is one class of joint disease acute in its course in which there appears to be doubt as to the etiology, namely, acute joint disease secondary to acute follicular tonsillitis. Is this acute rheumatism or is it an infection dependent upon some septic process as in the joint disease of scarlet fever? The clinical course and the fact that salicylates often relieve the pain suggest to me that this form may be properly spoken of as rheumatism in the strict sense of the word.

In hospital practice it is not uncommon to see a very perplexing form of severe joint disease that baffles us as to etiology and treatment,—usually monarticular, joint much swollen, boggy, intense pain, no proof of gonorrhea, no pus on aspiration, lasts weeks and often longer. This form is evidently septic, but the etiology obscure. X-ray has not shown the involvement of the bony tissues. Fixation is always necessary and baking has at times seemed to me to be of much value.

The second great advance has been in treatment in two directions. First, the great help obtained by properly applied fixation, a treatment that we as physicians owe to the great interest taken in chronic joint disease by the orthopedic surgeon. By this means the pain is relieved; by this treatment serious deformity may be avoided.

Secondly, we know that we must fight the disease as a chronic, depressing, debilitating process similar to tuberculosis. The most nourishing food that can be assimilated must be given in large quantities. The supposed danger of roast beef may be relegated to the fancies of the past.

In closing I would again say that I feel that in our modern knowledge as to chronic arthritis we must not forget that chronic rheumatism may exist, that is, a general systemic disease with its local manifestation in the joints.

CHRONIC JOINT DISEASE AT THE MASSACHUSETTS GENERAL HOSPITAL.*

BY H. F. VICKERY, M.D., BOSTON.

CASES of chronic trouble in the joints show a growing tendency to apply directly to surgeons rather than physicians, and this is true of hospital as well as private practice. I share in and am glad to express the gratitude which has already been voiced this evening by others, for the great additions to our knowledge of rheumatoid disease contributed by Dr. Goldthwait and the other gentlemen working with him.

* Read at the annual meeting of the Suffolk District Medical Society, April 30, 1904.

With the assistance of one of the medical house officers, Dr. Cleaveland Floyd, I have prepared a list of the diagnoses of joint trouble in medical cases admitted to the Massachusetts General Hospital from 1870 to June 1, 1903. It is interesting to notice the increasing precision in diagnosis in later years.

From 1877 to 1899 inclusive the joint troubles admitted were distributed as follows:

Rheumatism,	900 cases
Gonorrheal arthritis,	16
Gout,	24
Rheumatic gout,	3
Tabes dorsalis with Charcot joint,	1
A total of	944 cases

From 1893 to 1903 inclusive there were recorded

Rheumatism, acute,	591 cases
Rheumatism, sub-acute,	193
Rheumatism, chronic,	87
Total,	871
Gonorrheal arthritis,	86
Gout,	9
Chronic rheumatic arthritis and arthritis deformans,	40
Intervertebral rheumatism,	1 (1894)
Peri-arthritis,	1 (1903)
Acute arthritis,	7
Osteo-arthritis of spine,	15 (1902 & 1903)
Osteo-arthritis of hip,	1 (1902)
Osteo-arthritis of knee and ankle,	1 (1902)
Spondylitis typhosa,	1 (1903)

At least two other cases of this last trouble to my knowledge developed after entrance.

Thus in the last eleven years 1,033 cases of joint trouble were admitted on the medical side, and adding the cases previously referred to, the grand total is 1,977. Among all these we find but 33 cases of gout diagnosticated, a much smaller proportion than seems to occur in Baltimore.

In the classification given to-night the term chronic rheumatism has been dropped, and no speaker this evening as yet has referred to it. This doubtless comes from a conviction which is rapidly gaining ground that a chronic form of disease, essentially similar to acute polyarticular rheumatism, is of extremely rare occurrence, although without question some patients are afflicted with repeated and closely consecutive attacks of the acute disease, with more or less incomplete recovery therefrom.

Dr. Goldthwait assigns a more favorable prognosis to the atropic than to the hypertropic form of arthritis deformans. This agrees with the long-established clinical fact that cases of Heberden's nodes, affecting as they do the terminal phalanges, are more apt to have a mild course than are those cases in which the proximal phalanges are first involved with spindle-shaped swelling.

Dr. E. H. Bradford has suggested that in some instances of chronic joint trouble there may be a double infection. *A priori* this would seem to be perfectly possible, and I believe that I have seen cases of acute polyarticular rheumatism combined with gonorrhea and with gout, respectively.

One practical point of great importance in treatment relates to the cases of arthritis deformans with an acute onset. We should be on the alert to recognize these, and if any case does not yield quite promptly to the ordinary treatment for polyarticular rheumatism we should without delay adopt the supportive and tonic measures appropriate to the chronic disease. By this means it may be possible to cut short its course, and I myself have seen an incipient arthritis deformans in middle-aged men apparently cured by rest, outdoor life and travel.

In conclusion, it may be worth while to mention that cases of infectious arthritis have occurred in connection with gonorrhea, scarlet fever, influenza, pneumonia, dysentery, smallpox, syphilis, tuberculosis, erysipelas, spinal meningitis, glanders and septico-pyemia; and joint trouble is seen with such spinal diseases as tabes and syringomyelia; also with hemophilia; and no less than 82 cases of joint trouble have been reported associated with psoriasis.

RHEUMATOID DISEASE IN CHILDREN.*

BY JOHN LOVETT MORSE, A.M., M.D., BOSTON,

Instructor in Pediatrics, Harvard Medical School; Assistant Physician at the Children's Hospital and at the Infants' Hospital, Boston.

THE same or even greater confusion prevails in the terminology of the so-called rheumatoid diseases in childhood as there does in that of the same conditions in adult life. The literature of the subject is comparatively scanty and most confusing. What is apparently the same condition is described under many different names, and several different conditions are often described under the same name. In many instances, moreover, it is impossible from the descriptions given to get even a reasonable idea of what conditions are meant. None of the previous classifications of these diseases seems as satisfactory as that presented by Dr. Goldthwait to-night. It is simpler and more definite than the others and should in children, as in adults, do much to clarify the confused ideas on this subject and to bring some order out of the present chaos.

While all the forms of rheumatoid disease which occur in adults are also met in children they are unquestionably much less common in them than in adults. This is especially true of the atrophic and hypertrophic forms, both of which are extremely rare. For example, Koplik, in 1895, was able to collect but 18 cases, and Moncorvo, in 1901, but 48 cases of the hypertrophic form from the literature. Both writers undoubtedly, moreover, included many cases of the other forms in their series.

A form of rheumatoid disease, supposedly peculiar to childhood, was first described by Still in 1896, and has since borne the name of Still's disease. Little has been added by later writers to Still's original description which was based on about 20 cases and three autopsies. He concluded that there was a "peculiar disease, occurring in children, and beginning before the second dentition, which was characterized clinically by elastic, fusiform enlargement of joints without bony change, and also by enlargement of glands and spleen," and described it as follows: The onset, while sometimes acute with pyrexia and chills, is usually insidious, beginning with stiffness in one or more joints, which slowly become enlarged, other joints subsequently becoming affected. The joints earliest affected are those of the hands, wrists and cervical spine, the ankles, elbows, fingers and other joints being subsequently involved. The affection of the joints is symmetrical. The enlargement looks and feels more like a general thickening of the tissues around the bones than a bony enlargement, and is correspondingly smooth and fusiform without bony irregularity. There is no osteophytic growth even after years. There is never bony grating. There is no tenderness or redness except in very acute cases. Pain is absent as a rule, except on motion, when it may be present. There is always limitation of motion. There is no tendency to suppuration or bony anchylosis. The muscles which move the diseased joints show early and marked wasting without change in the electrical reactions. The most distinctive feature is the enlargement of the glands, which is general but affects primarily and chiefly those related to the affected joints. The glands are separate, hard, not tender, and show no tendency to break down. Their size varies with the acuteness of the symptoms in the joints. Enlargement of the spleen is almost always present, the amount of enlargement varying directly with that of the glands and the acuteness of the joint symptoms. There is generally a moderate diminution in the number of red corpuscles, often associated with a disproportionate diminution in the amount of hemoglobin. The temperature presents two types. One shows periods of pyrexia, lasting only a few days, and followed by longer intervals of apyrexia; the other, more or less continuous, slight pyrexia. The pyrexial attacks are not usually associated with any clinically demonstrable exacerbation of the joint trouble. The urine shows nothing important. Slight exophthalmos is sometimes present. The heart shows no evidence of valvular disease, although adherent pericardium has been found several times at autopsy. The course is slow. Improvement may take place for a time under treatment or spontaneously. The disease soon progresses again, however, until a condition of general joint disease is reached which seems to be permanently stationary. It is not fatal, the few recorded deaths having been due to complications. Pathologically, the joints show marked thickening of the capsule and of the connective tissues just outside it. There is also thickening and vascularization of the synovial membrane. Fibrous adhesions are sometimes present. The cartilages may show pitting at their margins from the pressure of little processes of the thickened synovial membrane, but are otherwise healthy. There are no bony changes. The enlarged glands appear normal on section or

*Read at the annual meeting of the Suffolk District Medical Society, April 30, 1904.

sometimes show ecchymoses in their substance. The spleen is firm and of normal appearance.

Later observers have added little to the clinical picture of the disease. Examinations of the blood have almost always shown a diminution in the number of red cells with a disproportionate diminution in the percentage of hemoglobin. They have also usually shown a slight increase in the number of white corpuscles, this increase being greatest in the polynuclear cells. Microscopic examination of the spleen has shown hyperplasia of the lymphatic tissue of the Malpighian corpuscles. Excised glands have shown simple hyperplasia.

It is very evident that this description fits most accurately certain forms of the condition described by Dr. Goldthwait as infectious arthritis. The condition of the joints is identical with that found in infectious arthritis. Moreover, x-ray photographs of typical cases of Still's disease show no bony changes. The anemic condition of the blood is the same as that seen in infectious arthritis after the acute stage is passed. The leucocytosis is evidence of a mild toxemia. The enlargement of the glands is also characteristic of infectious arthritis. Splenic tumor is not usually seen in adults with infectious arthritis. Its more frequent occurrence in children is propably to be explained by the greater reaction of the spleen to toxemia at this age. There can be but little doubt, therefore, that Still's disease is merely a somewhat peculiar form of infectious arthritis. This being so, there is no justification for setting these cases apart and giving them a special name. They should be considered merely as cases of infectious arthritis, and the name, Still's disease, should be dropped from our nomenclature.

The treatment of these cases of infectious arthritis in children is, of course, essentially the same as that of the same condition in adults. The salicylates and other so-called "rheumatic" remedies cannot be expected to do any good, and may by their depressing action do much harm. The prognosis is certainly better than that given by Still, and, taking into consideration the great reparative power of children, should be better than in similar conditions in adult life.

Nothing at all definite is known as to the bacteriology of that form of infectious arthritis of children commonly known as Still's disease. Edsall, however, has recently reported a case corresponding clinically to this type which he considers to have been caused by the tubercle bacillus. He thinks that there is a strong probability that Still's disease may, in a considerable proportion of instances, be of a tuberculous nature, and compares it to Sternberg's type of chronic lymphatic tuberculosis. His arguments are most suggestive but not entirely convincing. The proof of tuberculosis in his own case, moreover, is not conclusive. It is probable that this type of infectious arthritis is not due to any single organism, but that like other forms of infectious arthritis it may be caused by many different bacteria, among which the tubercle bacillus may possibly be included.

TYPES OF RHEUMATOID DISEASE.*

BY C. F. PAINTER, M.D., BOSTON.

THE recent Tuberculosis Congress in Baltimore is said to have been one of the most stimulating events which has ever occurred in the medical history of this country. The promoters of it are already contemplating a similar one on typhoid fever. The reasons which made this congress so valuable to medical men and to the general community do not, of course, obtain in rheumatoid disease to the same extent, chiefly because rheumatoid is not a disease communicable from one to another, and therefore education of the populace regarding its prevention and treatment is not so essential. The medical community is, however, very much in need of being stirred up to the recognition of its various types; to a study of their clinical course and pathological changes, and to a more rational treatment, based upon knowledge obtained from such studies.

The principal difficulty which has stood in the way of progress in our knowledge of these diseases in the past I conceive to be the failure to subject pathological investigation to careful clinical scrutiny on the one hand, or to check clinical inferences by pathological findings on the other. A perusal of the writings of authors in the middle period of the last century shows how careful they were in their clinical observations. So far as that is concerned, nothing has been added in recent years to augment our knowledge. With the advance in the understanding of pathological changes the desire to fit clinical "symptom groups" to the pictures of diseased conditions as revealed, grossly and microscopically, in joints affected with some one or other of the rheumatoid diseases increased.

The clinician's observations were better than the pathologist's, as is evidenced by the fact that practically nothing has been added or subtracted from the original clinical descriptions, whereas there are a great number of differing pathological descriptions for which there is no corresponding clinical symptom-complex. The confusing nomenclature is partly the fault of the clinician and partly of the pathologist, but principally of the former.

The pathologist has had different stages of one or the other of the three principal types of rheumatoid disease submitted to him for study, and has found changes of a similar sort in the three types. If he could have studied simultaneously the pathological changes in the tissues of each of the types from time to time as they were developing, he would, I am sure, have found that his pathological symptom-complex not only agreed for the same class of case and for similar stages of the same class, but would have coincided in most instances with the clinical symptom-complex to which it appropriately belonged.

The amenability of the group of cases designated "acute articular rheumatism" to the influence of the alkalies or salicylates has also been a stumbling block in the way of progress,

* Read at the annual meeting of the Suffolk District Medical Society, April 30, 1904.

for any joint or group of joints that showed simply a tendency to swell has been termed "rheumatic," without reference to any other clinical evidence, and if the joints failed to get better under ordinary doses of salicylic acid, they were not regarded as non-rheumatic, as they ought to have been, on the reasoning which would class them among the rheumatisms, but as peculiarly intractable cases, and heroic doses of salicylates were given, thereby often doing much harm.

I, therefore, believe that so far as we have data to work with it is more valuable to rely upon a careful study of the clinical course and physical signs, coupled with the pathological evidence obtained from good x-rays, than upon any purely pathological classification, whether it be gross or microscopical or both. I know that it seems trite to say this, but the fact remains that at the present time practically all the treatment rheumatoid patients get at the hands of most practitioners is based on a faulty conception of the clinical pathology of the disease, and in the last analysis treatment should be based on our knowledge of morbid anatomy.

We must recognize the evidences of inflammatory changes due to the presence of organisms or their toxins in the joints, but we must also recognize that there are probably chemico-physiological changes going on in the body which have nothing to do with direct septic intoxication, local or general, of however mild a character; that some of these metabolic changes do resemble in certain ways true inflammatory processes, but that careful clinical observation will generally distinguish them from each other, even in their purely local manifestations; if not, a broader view of the case will usually enable one to properly classify it.

In conclusion, I wish very briefly to show, as far as seems to me justifiable from our present knowledge of clinical pathology, how the external appearances of these so-called rheumatoid joints correspond to their internal appearances. The atrophic joint externally is swollen in a spindle-shaped manner, as a rule; is abnormally white in color, or, at times, though rarely, venously congested; shows oftentimes a constriction immediately at the line of the joint; is sometimes quite tense and apparently fluctuates; is oftentimes more or less deformed, and this deformity is usually a luxation or hyperextension, is sometimes covered with clammy perspiration and the skin is shiny and parchment-like. Inside the joint the swelling is in the synovial capsule of the type known as villous arthritis, with oftentimes various metaplasias; there is rarely any excess of fluid; the cartilage is thinned throughout uniformly or has become eroded in spots; has lost its glossiness, and is sometimes striated: the bone beneath is also atrophic, but not of the ordinary type of osteo-porosis seen in disuse or as the result of tuberculosis.

In hypertrophic arthritis viewed from the outside the joint is most swollen at the line of juncture between the bones or just to one or the other side; if there is general swelling of the joint it is due to fluid; very rarely to a local villous arthritis about some isolated spur; there is not apt to be any change in the color of the skin or any congestion; clammy perspiration is not common; if other deformity than the swelling occur it is generally a lateral deformity. (In this description as in the previous one of atrophic arthritis I am taking the finger joint as typical of all.) Inside there is often an excess of fluid, very little villous arthritis, and when there is it is usually the result of internal traumatism; irregular bony spurs or osteophytes are seen about the line of the joint, often overlapping it. The bone itself is not atrophic, but is unusually dense, even though function may long have been impaired.

The cartilage is increased in thickness, and is of its usual appearance and is not eroded, except from decubitus, due to impairment of motion within the joint.

The infectious joint from the outside is much congested, more spindle-shaped than the atrophic type, without its constriction at the joint line; there are not commonly other deformities than the swellings; there is sometimes clammy sweating; in the early stage they are often tender, red and angry in appearance. Inside, the fibrous, as well as the synovial, capsule is infiltrated. Adhesions form easily in the joint, and fibrous ankylosis is more common than in the other types; the membrane is much congested, but the villi are smaller, shorter and more vascular than in atrophic arthritis; sometimes there is considerable fluid and in it are apt to be fibrinous clots; the membrane is often edematous. Pannous formation along the cartilage is common; the cartilage appears fairly normal, does not tend to thin or erode and is not striated. Sometimes in severe infections it does become eroded; the bone beneath is not notably altered except in severe infections.

These in general correspond to the clinical pictures of three types which careful observation will easily pick out in the majority of instances. The types shade into each other in some cases, but for the general run of cases this will be found to fit very well.

Clinical Department.

CONCERNING ACETANILID.

BY F. C. CLARK, M.D., PROVIDENCE, R. I.

It may seem somewhat of a platitude to remark that acetanilid is a valuable medicament. Its importance, however, cannot be accurately determined unless by a careful selection and examination of cases which have not been treated in a routine and perfunctory manner.

The administration of acetanilid is either internal or external, according to the objects desired to be attained. And first, of its internal employment. It matters little, here, whether it be given in powder, in pillular or in liquid form, so that its full effects may be secured as expeditiously as possible. And at this point it may

not be inopportune to remark, that the necessity of largely diluting their medicines with water before taking, cannot be impressed too much upon patients; or, which is much the same, drinking a draft of water immediately afterward. In this way absorption of the remedy is more greatly facilitated by well-known chemico-physiological laws; and this fact is no less true with regard to the medicament under discussion. Its internal administration may be accomplished in one of several ways: it may be dusted on the tongue and followed by a drink of water; mixed with cane or milk sugar and then tossed down with a glass of water; or, still better, dissolved in a small quantity of very hot water, adding sufficient cold water before drinking. If given in pills, capsules, "konceals," wafers, etc., such administration may be advantageously succeeded by a glassful of water or of wine or other liquor if preferred. The addition of sugar to acetanilid somewhat removes its sharp taste. Again, it is used in conjunction with many other drugs.

There are certain dangers in the use of acetanilid which are more or less emphasized in the reports upon this remedy, though no more than usually attend the administration of a large number of these coal-tar products and synthetized compounds. This fact only goes to show how carefully every new remedy must be employed, especially in the case of new patients whose constitutions or idiosyncrasies are not as yet understood. Like all valuable remedies, when newly introduced, acetanilid has been much abused, or the necessary precautions in its administration not duly observed. Again, its value has been greatly overrated, and its dangers made proportionate to that high estimate. All the factors which enter into its successful administration should be carefully considered before it is given. The dangers in this connection will naturally decrease according as these factors are taken into consideration.

As the chief untoward effects of acetanilid are upon the heart and circulation, some counteractive to such depressing influence should of course be added to the remedy. This simple precaution is easily taken. For this purpose, some form of camphor is as good an arterial stimulant as any, mixed at once with the medicine, or taken afterwards. For those persons who have an antipathy to this drug, rarely the case however, some form of liquor may be substituted, such as wine, whiskey, brandy, etc. The smell of the camphor may be somewhat obviated by using capsules; unless the camphor "rises," its unpleasantness will not be experienced.

Bicarbonate of soda seems to be a favorite constituent of all the proprietary remedies of which acetanilid or antipyrine (virtually the same thing) forms the active principle, and which go under the name of "headache powders." The fact is notorious that danger lurks in these preparations to a lamentable extent. Hence the soda is clearly not a corrective of the dangers of acetanilid. Neither is acetanilid an antifermentative, as some would have it. In my own case I have not found it capable of stopping acidity of the stomach without the addition of soda-bicarb.; it seemed to aggravate rather than to allay the fermentation. Hence this would imply that soda-bicarb. is a good adjunct to acetanilid whenever an antacid is indicated. However, being itself an antiseptic, it may possess some power here in allaying fermentation as one would naturally suppose; but, unfortunately, I have not thus far succeeded in finding it so.

As an internal remedy, acetanilid is fourfold in its action, *viz.*: anodyne, antipyretic, sudorific and, perhaps, slightly soporific.

I. Though acetanilid is capable of assuaging pain, it will not remove all pain, that is, every kind of pain, no matter what the cause; it will never take the place of the other well-established anodynes. Nor will it cure every sort of headache, notwithstanding the fact of its being the active ingredient of the much-vaunted "headache powders." For headaches of the persistent type, under the name of sick, nervous, "bilious," periodic or megrim, acetanilid, when combined with soda-bicarb. and caffeine (Acetan. 3 to 5 gr., Cit. Caff. 1 gr., Sod. Bi., 5 to 10 gr. Misc.) secures many excellent results. But it must be remembered that caffeine will oftentimes accomplish the same results when given alone; so does guarana (the old paullinia sorbilis) with which, under the latter name, I have succeeded in removing the wretched headache from which an old lady had been a sufferer for a period of thirty or forty years. This was at the time when paullinia was first imported into this country, under that appellation, from France, and in the form of powders, of 12½ gr. each, and twelve powders in a box, I think. Two or three powders, given at intervals of half an hour, would generally relieve the pain. Bromide potas., or bromide sod. has accomplished like benefit; so too much credit ought not to be given to acetanilid for cures equally attainable by other remedies. What will answer well in one case may not in another: even a change of diet may secure the end desired.

In spasm of the stomach, known as gastralgia, and in acute attacks of indigestion, a combination of 3 gr. of acetanilid and 5 gr. of bicarb. of soda has both succeeded and also failed.

II. Acetanilid also reduces the temperature; and, III, it excites the perspiration. As these two effects of this medicament are concomitant, they will be discussed together. Except, in a few instances, in its latter capacity it is the equal here of the time-honored "Dover's powder," once regarded as the sheet anchor of the pharmacopeia. In incipient coryzas, and in certain bronchial affections and in pharyngitis (all labelled "colds" by the laity) the effects of acetanilid are sometimes wonderful. In the hot stage, attended by a difficulty of breathing through the nose or by a feeling of tightness in the chest, by shivering, soreness of the flesh and by a general malaise (all of which symptoms may be the precursors of some serious affection or merely of a simple cold in the head) acetanilid, given in small and repeated doses, relieves always and may ward off the

threatened attack. The dose in this case should be from 3 to 5 gr. repeated every two or three hours. The moment perspiration is established the danger line is passed.

Another method of "breaking up a cold," as it is termed, is to administer from 5 to 6 gr. of acetanilid at bedtime, followed by a hot foot-bath and a draft of hot lemonade or of hot whiskey and water and the like. In this respect, I think that this remedy is superior to the much-lauded quinine and many times as beneficial as Dover's powder, without its disagreeable taste and after effects. As a reactionary agent acetanilid possesses great powers, provided its depressing tendencies are counteracted.

In influenza its value is considerable in establishing a reaction through its sudorific powers. For this purpose it may be administered in doses of from 5 to 10 gr., according to age and other considerations, every two or three hours, until full perspiration is established. This dosage should not be carried, however, beyond the fourth time. There is usually obtained a profuse perspiration after the third or fourth dose. Should no perspiration occur after the fourth dose, it is a safer practice to discontinue the remedy for a while and, when resumed, to be repeated at longer intervals. But great care should be exercised and it should not be persisted in for too long a time in large doses. Sometimes it fails; and some other medical agent has to be employed.

IV. As to its soothing, or soporific properties, acetanilid is of some service. In the first stage of a "cold," its employment produces a well-pronounced quietness; a feeling of ease and comfort at once supervenes; a reaction soon sets in; and many of the bad symptoms lessen or totally disappear. Some of these beneficial effects may be due, however, to its other virtues. These effects I know from actual experience, though in a far less marked degree than what are obtained from either opium or its alkaloid, morphine. Perhaps this is one of the effects of the remedy which makes it so great a favorite among persons who are troubled with "bad nerves." But physicians are not always responsible for the abuse of a drug. Acetanilid has not been misused more than many other medicaments. Unfortunate results will follow the administration of a remedy, even on the exercise of a due amount of skill. I have employed it in a great number of cases, both internally and externally, and thus far without any unfavorable result; of course the necessary precautions have always been taken. The employment of acetanilid as an internal remedy, will, in the course of time, find its limitations.

External Employment. As an outward application acetanilid acts both aseptically and antiseptically. It may also subserve the purpose of an anodyne, but it does not possess that property to that degree as resorcin. In these instances it is clearly employed as a dry dressing. It is indicated in all discharging surfaces, open wounds, ulcers, granulations and, especially, in operations in minor surgery, and may be advantageously used in every case requiring a dry dressing.

Suppurating and ulcerative surfaces are first washed with peroxide of hydrogen, then the part is sprinkled with acetanilid (pulv.) covered with a strip of absorbent cotton or of ordinary lint that has been previously smeared with vaseline, then the whole bandaged if necessary. If the surface, which is to be treated, is large, precaution must be taken not to make a too lavish use of the acetanilid. It may be said here, that it is the equal of iodiform as an aseptic, without having its disagreeable qualities. Sometimes I have given the outside of the lint or absorbent cotton a thin dusting of powdered acetanilid in addition to the former application.

In the treatment of open wounds and of the minor operations, the procedure is somewhat as follows: The injured part is first cleansed and carbolized, the loose ends adjusted, sutured or strapped, or both, then carbolized, and acetanilid dusted over the whole. A bandage may be now loosely applied. After removing whatever sutures there may be, the wound is to be treated as before. After the second dressing little or no subsequent treatment is usually necessary, unless for the readjustment of parts where the tissues have been much torn. Extensive lacerations by machinery of thumbs and fingers, even when the bones are split and necessarily require whole or partial removal, under this method have admirably healed and with hardly an exception, without the formation of any pus.

In the treatment of ulcers of the leg, generally of the varicose variety, the use of acetanilid has, in my hands, surpassed every other application adopted in my former hospital practice. At that time the common procedure consisted in poulticing, cauterizing, the application of the perfunctory iodiform, ointments of various kinds, astringent washes and mainly strapping. The method was long and tedious and somewhat expensive in private practice.

I have in mind two cases which will illustrate the new method.

Case. I. M. W., female, single, eighty-four years of age. She had been troubled for years with varicose veins of both legs, an occasional eczema and an ulcer or two on one or both legs. The old form of treatment, though always effectual, was very slow; and the painfulness of the ulcer did not abate much until such treatment was well advanced. The present ulcer had been of some months' standing, was very painful and irritable, and constituted a typical chronic, irritable, indolent ulcer. She never was able to wear either an elastic stocking or rubber bandage on account of the exceeding irritation which each would produce; consequently, the only palliative treatment of her varicose veins was by means of linen bandages, and then not put on too snugly.

The ulcer was first thoroughly cleansed with a 4% solution of peroxide of hydrogen, next acetanilid was dusted over the sore, a strip of absorbent cotton, smeared with vaseline, applied and the leg not too snugly bandaged. As much rest as could be obtained was enjoined.

After two or three such treatments the pain and tenderness of the ulcer disappeared, a healthy action was established, and in a period not exceeding four weeks, the ulcer was practically healed. The patient

then left town, from whom I subsequently learned that the ulcer had entirely gone. From that time to the present writing (a period of over three years) it has never returned.

CASE II. M. N., female, widow, mother of six living children. Her occupation, that of washerwoman, obliges her to be much upon her feet. She was troubled with eczema of one leg (which was easily cured), with varicose veins of the legs, and with a small, irritable ulcer, of about two years' standing, near the ankle of the right leg. The ulcer was treated in the same manner as in the first case under consideration; and in two or three treatments the ulcer healed. She was advised to wear a linen or cotton bandage in the place of the ordinary elastic one, on account of its causing so much irritation to the leg. I kept her under observation for nearly a year during which time there was no reappearance of either eczema or of the ulcer.

Medical Progress.

REPORT ON PHYSIOLOGICAL CHEMISTRY.

BY J. BERGEN OGDEN, M.D., BOSTON.

ACID SECRETION BY THE KIDNEYS.

CUSHNY[1] who has made a study of this subject has found that the reaction of the urine varies within strict limits in diuresis; it is never alkaline to phenolphthalein nor acid to methyl orange, and thus corresponds approximately to the interval in reaction between mono- and di-sodic phosphate. The intravenous injection of most saline diuretics is followed by a marked fall in the percentage acidity, partly because the phosphates are present in only small amount, and partly because the absorption in the tubules is deficient. Phosphates injected intravenously give an acid reaction to the urine which is especially marked when the diuresis is partially prevented by increasing the absorption in the tubules. This is explained by the hydrolytic dissociation of the phosphates of the glomerular fluid which permits of the absorption of the cation along with the hydroxyl or carbonate anions; these are capable of permeating the epithelium, while the phosphate anion fails to penetrate it so freely and remains in the tubules along with the hydrogen cations replacing the original ones.

The essential features in the secretion of acid urine are (1) the presence of salts in the glomerular fluid which are capable of extensive hydrolysis, and (2) insufficient absorption in the renal tubules.

LIPASE IN THE URINE.

Hewlett,[2] in his work on the occurrence of lipase in the urine as a result of experimental pancreatic disease, has evolved the following method for the qualitative and quantitative determination of lipase in the urine:

Method: "Five cubic centimeters of urine are placed in each of three flasks. The urine in the second flask is then boiled. To the urine in the third flask are added three drops of a 1% solution of phenolphthalein and $\frac{N}{10}$NaOH solution is allowed to run in from a burette until a pink color appears. The amount of NaOH is read off and a like amount is added to the first and second flasks. To each of these two flasks, the first of unboiled urine, the second of boiled urine, is then added $\frac{2.5}{10}$ cc. of ethyl butyrate and $\frac{1}{10}$ cc. of toluene, and they are placed in a thermostat at 39° C. for about twenty-four hours. The toluene is added to prevent the growth of bacteria. At the end of this time each flask is taken out and sufficient $\frac{N}{10}$HCl is added to more than neutralize the alkali previously added by $\frac{2.5}{10}$ cc. Each specimen is then shaken in a separating funnel with 50 cc. of redistilled ether, and the ether is separated. After adding three drops of a 1% solution of phenolphthalein to 25 cc. of pure alcohol, the latter is brought to the neutral point. The ether extract from the separating funnel is now added to the neutralized alcohol and its acidity is determined by titrating with $\frac{N}{10}$KOH solution. Any decided difference between the acidity of the ethereal extracts of the boiled and the unboiled urine is due to the butyric acid formed by the cleavage of the ethyl butyrate, and when the difference in acidity is at all great, the odor of butyric acid can be easily recognized. This method of determining lipase is simple and is sufficiently accurate for the amounts of lipase which occur in the urine under certain pathological conditions."

From the author's extensive research he draws the following conclusions: (1) It is possible to show the presence of lipase in the urine and to roughly estimate the quantity present. (2) Very little, if any, lipase is present in normal urine. (3) Lipase appears in the urine after a variety of insults to the pancreas of the dog. (4) It was found in greatest quantity as a result of experimental acute hemorrhagic pancreatitis. (5) It was also found over a period of from three to five days after obstruction of the pancreatic duct. (6) It is probable that severe pancreatic trauma may cause the appearance of lipase in the urine. (7) The above are some of the conditions in which fat necroses are most apt to occur in human pancreatic disease.

THE BLOOD AND URINE IN ECLAMPSIA.

Zangemeister[3] has made a comprehensive research of the blood and urine in eclampsia. He determined the alkalinity of the blood, the amount of chlorides, concentration of the serum, and the freezing point; and in the urine, the proportion of constituents, and the "chloride quotient," — the relation between the chlorides and the total salt molecule. He found that the blood contained an abnormally high percentage of globulin evidently due to loss of plasma. The "chloride quotient," which was found to average normally 40%, in eclampsia was found to be as low as 20%. This phenomenon he considers probably the result of an interference with the circulation through the kidneys, manifestly due to contractions of the blood vessels in the kidneys causing anemia of these organs; furthermore, that these contractions are synchronous with the labor contractions

[1] Journal of Physiology, vol. xxxi, nos. 3 and 4.
[2] Journal of Medical Research, vol. xi, 1904.
[3] Zeitschr. f. Geburts. u. Gynækologie, vol. i, no. 3, 1904.

of the uterus. He also argues that the anemia of the kidneys, which checks the elimination of water and salts through them, is a very potent factor in causing eclamptic convulsions in many instances. This conception of eclampsia does not however, exclude the action of toxins as a cause.

CHOLINE: A NEW METHOD OF TESTING FOR ITS PRESENCE IN THE BLOOD AND CEREBRO-SPINAL FLUID.

Allen [4] has published a new method for the detection of choline which he considers an improvement over the older platino-chloride method.

Ten to 20 cc. of freshly drawn blood are mixed with 4 to 6 times its volume of 96% alcohol, allowed to stand for two hours, filtered, and the filtrate evaporated to dryness at 30° to 40° C. The residue is extracted with 3 cc. of 99.6% absolute alcohol, filtered, and the filtrate again evaporated to dryness. A third extraction with 1.5 cc. absolute alcohol having been made and the filtrate evaporated to dryness as before, 0.8 cc. of distilled water are added, the whole well mixed and transferred to a small dialyzer and dialyzed for twenty-four hours into 4 cc. distilled water. The resulting clear aqueous fluid is then evaporated to dryness in a small porcelain capsule, and to the residue one drop (0.1 cc.) of distilled water is added and shaken round in the capsule. An approximately saturated solution of iodine in 30% alcohol is then carefully added, drop by drop; the addition of 5 to 10 drops of the iodine solution results in the production of a reddish brown precipitate or coloration if choline is present; this color, however, quickly disappears on standing or on the addition of an excess of the test solution.

Reactions were not obtained in the blood of healthy people, but did occur in the blood of cases of general paralysis with convulsions, acute diphtheritic paralysis, cerebral syphilis, and in a case where a number of nerves had been severed high up in the axilla.

THE END-PRODUCTS OF THE SELF-DIGESTION OF ANIMAL ORGANS.

Levene [5] has investigated the autolysis of different organs in the hope of throwing some light upon the metabolic processes in life, since he believes that autolysis is similar to the processes going on in metabolism. In this investigation the products of the autolysis of the pancreas and liver were studied. Alanin, aminovalerianic acid, leucine, pyrrolidine carbonic acid, glutaminic acid, phenylalinin, uracil and thymine were obtained from the autolysis of the pancreas. From the liver he obtained glycocol, leucine, aminovalerianic acid, alanine, phenylalanine, tyrosine, asparaginic acid, glutaminic acid, thymine, uracil and lycine. For the separation of these bodies, the methods of Fischer were used.

ON THE SELF-DIGESTION OF NUCLEOPROTEIDS.

Jones [6] has found that the self-digestion of nucleoproteid of the thymus gland yields xanthine, a small amount of hypoxanthine and uracil, but neither guanine, adenine, nor thymine, although the last three are formed by the action of mineral acids upon thymus nucleic acid. Xanthine and a small quantity of hypoxanthine are formed as a result of the self-digestion of suprarenal gland. The spleen when subjected to autolysis yields guanine as well as in the hydrolysis of nucleic acid. On the other hand, hypoxanthine is found in the autolysis while one might expect to find adenine; uracil is formed instead of thymine and cytosine which appear in the hydrolysis of nucleic acid.

THE CHEMISTRY OF BACILLUS COLI COMMUNIS.

Leach [7] took pure colon cultures obtained from feces and grew them on agar in a large tank. After seven to fourteen days the growth was removed, freed from agar, extracted first with alcohol and then with ether, dried and pulverized. This material was treated with 1% H_2SO_4 and filtered. The extract was poured into alcohol, and then purified by solution in alcohol. After drying at 100° C. for long periods, a dry powder was obtained which was very hygroscopic. Determinations on the ash showed that 5.3% of the substance was phosphorus. Sulphur was present to the extent of 9.22%. Nitrogen determinations gave 6.49%. This acid cleavage product dissolved in water, giving an opalescent solution acid to litmus. The solution became clear and transparent on the addition of a trace of alkali. It gave a very faint biuret reaction and a good xanthoproteic reaction. In this article the presence of the hexone bases — histidine, arginine, and lysine — in bacterial cells has been indicated. The methods used were modifications of those of Kossel and Kutscher.

EXPERIMENTS ON THE PRECURSORS OF URINARY INDICAN.

The experiments of Underhill [8] tend to show that the presence of indican in the urine owes its origin to the activity of bacteria in the intestines. Since tryptophan has been regarded as a precursor of indol, substances containing no tryptophan group, notably gelatine, were fed to dogs for the purpose of determining whether indican would be found increased in the urine. The results show that, under these circumstances, the urine contained a marked decrease of indican.

THE USE OF FORMALDEHYDE AS A PRESERVATIVE IN URINE.

Kenney [9] who has conducted a series of experiments on the use of formaldehyde in the urine as a preservative concludes that formaldehyde as an artificial ingredient of the urine is very apt to lead to deceptive results in the analysis of the urine by (1) making the urine appear albuminous when it is free from albumin, and (2) not giving a typical reaction when albumin is present. The so-called "Iatrona test" for albumin by the use

[4] Journal of Physiology, xxxi, no. 5.
[5] Ztschr. f. Physiol. Ch., xli, 393–404.
[6] Ztschr. f. Physiol. Chem., xlii, 35–55.
[7] J. Am. Med. Assn., April 16, 1904.
[8] Am. Journal of Physiology, x, 21.
[9] N. Y. Med. Journ., lxxix, 403–405.

of a solution of formaldehyde should, therefore, never be used. Furthermore, it should be borne in mind that a perfectly normal urine may give a positive reaction for albumin by either the nitric acid test or by the heat and nitric acid test when the urine contains formaldehyde.

THE CEREBRO-SPINAL FLUID IN HYDROCEPHALUS.

Coriat [10] obtained about 1000 cc. of the fluid from a congenital hydrocephalic imbecile and found that it was clear, straw-colored, and did not coagulate spontaneously. It had a faintly acid reaction, sp. gr. 1,012, and contained lutein as the coloring matter. Pyrocatechin, cholesterin and choline were absent, while the presence of fat, urea, serum globulin only, and a reducing substance, probably dextrose, were demonstrated. The inorganic constituents consisted of phosphorus, potassium and sodium; also traces of calcium and magnesium. Iron was absent. The presence of a diastatic ferment was also found.

THE PRODUCTS OF GLYCOLYSIS IN BLOOD AND OTHER ANIMAL FLUIDS.

Austin [11] has made a thorough investigation of this subject and his results are interesting. Normal blood of almost all animals when freed fresh from its albumins shows a reducing body which is unquestionably largely made up of dextrose. When, however, the blood is allowed to stand for some time, even when kept free from bacterial decomposition by antiseptics (thymol), this reducing body disappears, and only a substance which is able to hold copper in solution in an alkaline medium is found, but no reduction takes place. The author directed his efforts to finding out what became of the sugar thus destroyed, and to determining whether the products of glycolysis of the blood might be glycuronic acid, saccharic acid, oxalic acid, or carbonic acid. He finds that there is evidence that paired glycuronic acid exists in ox blood and in human serum, but no evidence that dextrose is converted into that substance by any glycolytic ferment existing in the blood. Where this change takes place, if it does, we do not know. He has also demonstrated that the large amount of dextrose failing to reappear in these experiments is not converted into carbonic or oxalic acids.

Reports of Societies.

AMERICAN PEDIATRIC SOCIETY.

SIXTEENTH ANNUAL MEETING AT DETROIT, MICH., MAY 30, 31, JUNE 1.

(Continued from No. 19, p. 520.)

SECOND DAY — (Continued.)

EDUCATIONAL FEATURES IN PEDIATRICS.

UNDERGRADUATE teaching might be carried out by means of didactic lectures and bedside instruction; post-graduate teaching should be systematized on a strictly clinical basis; and physical diagnosis, laboratory work and dietotherapy and hydrotherapy made a prominent feature in the course of pediatrics. In giving clinical instruction in pediatrics, Dr. Caillé during the past fifteen years had adopted the following plan: The first forty minutes of the clinic are devoted to a more or less rapid demonstration of ten or fifteen sick children who were placed on tables accessible to the matriculates, the balance of the hour being taken up by a discussion of the principles of treatment of important groups of disease, or a demonstration given of stomach washing, bowel irrigation, spinal puncture, intubation, tracheotomy and other subjects.

In conclusion, Dr. Caillé thought it would be feasible that the annual transactions should contain a running record of the world's progress in pediatrics by presenting at each meeting a critical review of it during the year under the following headings: (1) Home, School and Hospital Hygiene and Prophylaxis; (2) Teaching Methods in Pediatrics; (3) Diagnosis: Bacteriological, Chemical and Regional; (4) General Therapeutics, including Nutrition, Diet, Hydrotherapy, Phototherapy, Electrotherapy; (5) Surgical Therapeutics; Orthopedics and Mechanotherapy. At each annual meeting the council should designate the members who would be expected to furnish a critical review of progress for the next annual meeting, thus giving them a year's time in which to collect material.

ANALYSIS OF ONE HUNDRED AND EIGHTEEN CASES OF LOBAR PNEUMONIA IN INFANCY.

DR. J. L. MORSE, Boston, read this paper and gave the following summary: Lobar pneumonia is more common and occurs relatively more frequently in comparison with broncho-pneumonia in infancy than is generally supposed. The analysis of these cases shows the following points: The onset was less stormy than is generally supposed. It was often ushered in by vomiting, but rarely by a convulsion. It usually began with fever and cough, which were often accompanied by apathy or drowsiness. Movement of the *alæ nasi* was not a constant symptom. A whole lobe was more often involved than a part. The left lower lobe was the one most frequently involved. The right upper and right lower lobe came next in frequency. The portion of the lungs involved was relatively the same in the fatal cases as in those which recovered. As a rule, the area involved was larger in the fatal cases. The average duration of the fever in the cases that recovered was about eight days, being nearly the same in both years. The course was more often short in the first year, however, than in the second. The average duration of the fever in the uncomplicated cases that were fatal was 12.8 days; that is, the duration of the fever was longer in the fatal cases than in those that recovered. The highest temperature was usually between 103 F. and 106 F., the number of cases being nearly the same for each degree. The temperature fell by crisis in 68.8%. Crisis was less common in the first than in the second year. Collapse during the crisis was very unusual. Pseudo-crises were not very common, but irregularities and remissions in the temperature were not at all unusual. The mortality was lowest when the temperature did not rise above 103 F., and highest in those cases in which it went over 106 F. The degree of fever between 103 F. and 106 F. had no apparent effect on the mortality. A high temperature was no more fatal in the second year than in the first year. The usual pulse rate was between 150 and 170. No case died in which the pulse was not over 140. The rate of the pulse, when it was above 140, had little or no apparent effect on the mortality. The usual respiratory rate was between 55

[10] Am. Journ. Physiology, x, 111–115.
[11] Am. Journ. of Med. Sciences, May, 1904.

and 80. No case died in which the respirations were below 55. The rate of the respiration, when above 55, had no apparent effect on the mortality. The mortality, excluding the cases in which death was due to empyema, was nearly 23%. It was almost twice as great in the first as in the second years, being 32% and 18% respectively. Otitis media was the most common complication, occurring in 18%. Empyema was the next most frequent, occurring in about 8%.

Prognosis. — The following statements regarding prognosis seemed justified: The prognosis of lobar pneumonia in infancy varied decidedly with the age of the patient, and to a certain extent with the amount of lung involved. The prognosis was good when the temperature was not over 103° F. It was serious when it was above 106° F. Variations between these points made little or no difference in the prognosis. The prognosis was good when the pulse was not over 140 or the respirations over 55. The amount of the increase above these limits was of little importance

Dr. Charles G. Kerley said he was surprised at the variations of pulse and respirations as they occurred in healthy normal children.

Dr. F. S. Churchill said that he had no doubt but that lobar pneumonia existed more often in children than was generally supposed, and he believed this was due to the fact of careless examinations. He related the instance of a baby two months old who contracted a pneumonia, and the culture showed the pneumococcus and the smear the bacillus of influenza; the child recovered from this attack. Six weeks later another lobar pneumonia developed in exactly the same spot and in the course of ten or twelve days the child died. The culture here showed the pneumococcus, but no influenza bacillus was found. It was interesting that with the combined infection the attack was trivial. The combination of these two in an adult was usually fatal. Regarding the treatment, the giving of the depressing antipyretics in infants was far more dangerous than in adults. Sponge baths were better borne than tubbing.

Dr. L. E. Holt said that while in Paris last summer it was interesting to hear the diagnosis made of lobar pneumonia "intralobar pleurisy." These cases cleared up so often by absorption. It was amusing to note the prejudice shown there against certain methods of diagnosis. In a series of sixteen cases, Dr. Holt had found the left lower lobe affected alone. With regard to prognosis, it seemed to him that where but one lobe was involved it was rarely fatal, no matter where the temperature and pulse and respirations went, provided the child was in fairly good condition previous to the onset of the disease. He believed that too much importance was attached to the rapidity of the pulse; it was the quality and not the rapidity of the pulse that was so important. He could recall a case with a temperature of 107.7° F. that got well. The antipyretic treatment of pneumonia he confessed was a failure. The element of rest should not be forgotten.

Dr. Samuel S. Adams believed that the mortality quoted was altogether too great, for it did not accord at all with what his experience had been. Ten per cent. was about his mortality in private practice. He had long since abandoned the baths except in extreme cases. If a patient had a temperature of 108.6, he would advise clearing out the bowels and placing the child in the tub; in such a case he found that two hours afterwards the temperature had dropped to 104, but the lung was solid from base to apex and the child was moribund.

Dr. W. P. Northrup prophesied that two years from now these cases of pneumonia would be treated by placing the patient near a window where he could get much cool, fresh, wholesome air, which would not only act as a stimulant, but as an antipyretic.

Dr. J. L. Morse said that the pulse and respirations were taken when the children were asleep or quiet and by rectum. The point he wished to bring out particularly in his paper was that there was no particular cause for alarm if there was a rapid pulse and respirations. Most of the cases he reported were sent into the hospital as though suffering from some abdominal lesion. He believed in letting these patients alone, giving them all the rest possible, fresh air, bowels open, etc. If the nervous symptoms were very marked, then treat the temperature. Personally he never gave the coal-tar preparations in pneumonia. Regarding the application of cold, his experience led him to believe that children bore tubbing and sponge bathing badly. He wished to bring out in his paper the fact that lobar pneumonia in infants was a more serious disease than generally supposed.

THE ACUTE PYELITIS OF INFANCY.

Dr. Rowland G. Freeman, New York, said that any disease which could pass unrecognized while under intelligent observation for several weeks, on account of the absence of local symptoms pointing to the location of the disease, deserved to be called frequently to the attention of the profession in order that the characteristics of its manifestations may become familiar and subsequent cases not be overlooked. The acute pyelitis of infancy was a disease of this sort. Its rarity was sufficiently emphasized by the small number of cases reported. The etiology of most of the cases recorded was very indefinite, a very large proportion of them occurring in female children. Infection from the genito-urinary tract seemed probable, while the organism associated with most of them, the bacilli coli communis, pointed to an infection from the alimentary tract, as did the fact that many of these cases followed intestinal disorders. The clinical manifestations gave no evidence that the pelvis of the kidney was the source of the trouble. These patients usually had abnormal movements from the bowels associated with a high temperature of irregular type with marked remissions and followed by a rapid elevation, which in some cases was accompanied by chills. The procuring of a specimen of urine from a baby involved some difficulty for those unaccustomed to work with these patients, so that this method of diagnosis was apt to be neglected. On this account he believed that many of the recorded cases had been allowed to progress for long periods of time before curative treatment had been adopted. This was very unfortunate, because curative treatment was simple and safe, the neutralization of the urine. A case was then reported which seemed of interest since it occurred in a male child; questioning the mother revealed the fact that the infant showed some evidences of urethral irritation at the beginning of the attack, which attack was preceded by two or three weeks of slight digestive disturbance as indicated by abnormal stools. The child continued sick for three weeks with an irregular temperature, which toward the end of this period remained constantly very high, and was associated with such nervous symptoms as twitchings and stiffness of the back of the neck. As soon as remedial treatment was instituted, on the twenty-second day of the disease, the temperature steadily declined until it reached normal, on the twenty-ninth day. The child had steadily gained in weight and became perfectly healthy. A detailed history of this case with the results of the blood examination here followed.

Dr. Morse thought that the frequency with which this condition was met depended upon how frequently

we examine the urine. In Boston for several years an examination of the babies' urines had become a routine practice, and he had never gone on service in the hospital but what there were from two to four cases of acute pyelitis in the wards. Diagnosis was rather difficult, even though the urine be carefully examined; babies may have an acid urine and a great deal of pus, but nothing else, and it was hard to tell whether the pus came from the kidney or the bladder. In cases where he found squamous cells he supposed the trouble was in the bladder; when he found spindle and caudate cells, then he believed the kidney to be the seat of the trouble, either a pyelitis or a pyelonephritis. Nearly all such cases he thought to be due to the colon bacillus, but this was a new subject and the field was open for further investigation. In two cases that he had seen the presence of tubercle bacilli in the urine opened up another new field for him. In these cases there was tuberculosis of the kidneys, but no tuberculosis elsewhere. He had found no difficulty in obtaining urine from babies for examination.

DR. ISAAC A. ABT said that some years ago he had speculated regarding the cause of this infection, and in a large number of cases, twenty-six or more, the infection appeared to come from some part of the bowel, particularly a follicular enteritis. He then wondered if the colon bacillus could go through the loose cellular tissue of the pelvis. It seemed to him there must be some more direct mode of infection, either through the vascular system or the lymphatic system. He reported an instance of acute pyelitis in which the Shiga bacillus was found in the urine, and this again opened up a new field for investigation.

DR. THOMAS M. ROTCH spoke of the great difficulty of discovering the tubercle bacilli. In the cases that he had seen he had found the disease to be exceedingly latent and the tubercle bacilli would not have been found if repeated examinations had not been made.

DR. JOHN DORNING thought that the society could not too strongly emphasize the importance of urine examinations in children's diseases. Years ago Dr. Jacobi presented a small catheter (No. 5) in two sections, and one of these he carried in his pocket for years and usually demonstrated its use at the clinic. An instrument maker in New York made four or five hundred of them and sold all; so that they are now scattered all over the country. The diagnosis of acute pyelitis in children he had found to be rather difficult on account of the vague symptoms. When there was frequency in urination and distress at the neck of the bladder, he then looked for this condition. He believed one should always suspect a tuberculous condition in cases of pyelitis. The condition was a very latent one and often even the microscopical examination did not aid in making the diagnosis, and even the inoculation of guinea pigs may not aid. In giving urotropin he said that it was better to give it with benzoate of soda if the urine is alkaline. By so doing, very large doses could be given without irritating effects.

DR. FLOYD M. CRANDALL asked regarding the possibility of increased susceptibility to kidney trouble in later years after children have suffered attacks of acute pyelitis.

DR. L. E. HOLT said he had had patients under observation, one for ten years, the other for nine years, and they were absolutely well and the attacks they had were very severe.

DR. A. JACOBI said that a more lasting impression was made on medical men if certain things were hammered and hammered again into them, and one of the things that should be frequently hammered was that when you have a doubtful case and a diagnosis had not been made, *examine the urine*, and often you will be rewarded by finding an acute pyelitis present. Do not neglect the examination of the urine. If there was pus and bladder epithelia in the urine, he said it was reasonable to suppose at least part of this came from the bladder; but if there were present in the urine renal epithelia and now and then small granular casts, and possibly later some blood and pus, that would indicate a pyelitis. In cases of pyelonephritis one got more kidney elements than in cases of simple pyelitis. He had frequently been called to see cases of protracted fever that had been unfortunately diagnosed as malaria, and found a case of nephritis or pyelitis. It was not sufficiently hammered into the heads of medical men that nephritis was a frequent disease in young infants; the urine should more often be examined. There was one remedy he was very fond of and that was gallic (not *tannic*) acid in large doses; it was an agent well tolerated. He referred to a case of a child three or four years old whose urine was full of uric acid, it falling down in amorphous masses; when he gave urotropin it fell down in crystals. He preferred to use gallic acid and in fairly large doses. Regarding tuberculosis, he had not seen many cases, and it was exceedingly difficult to find the tubercle bacilli in the urine. He believed that those cases, the result of bacterial infection, would get well; but if they were the result of calculus, then the prognosis was graver.

DR. R. G. FREEMAN said that at the Foundling Asylum in New York the urines of children were examined regularly. No difficulty was experienced in obtaining samples of urine from babies. Regarding the possibility of the Shiga bacillus being present, the case reported did not appear like Shiga cases at all; there was no blood or loose movements. His impression was that if the case recovered, it recovered slowly and then relapses did not occur. Urotropin had been used before citrate of potassium in this case.

ACUTE MYOCARDIAL INSUFFICIENCY IN SOME INFECTIONS IN CHILDREN.

DR. F. FORSCHHEIMER said the importance of this subject lay in the fact that a large number of these acute myocardial insufficiencies developed in connection with the infections in childhood, and beyond the possibility of a fatal termination from this acute condition, there remained another which was far-reaching for the future of the individual who survived. In some of these cases the myocardial changes were so marked that permanent damage was done to the heart which might only manifest itself when an extraordinary call was made upon the functional activity of the heart. As it was a fact now accepted by all that, in every case of peri- and endocarditis the myocardium was more or less involved, it could be seen how great the number of cases became in which it was possible that acute myocardial insufficiency might develop. The development of symptoms of acute myocardial insufficiency depended upon the amount of damage done to the myocardium. At first there is noticed a diminution in heart force and arythmia; then followed dilatation of the left heart, then of the right heart, with relative insufficiencies of their valves; so soon as the right heart was seriously affected, then followed marked enlargement of the liver. The latter he had seen descend to the level of the umbilicus. The signs and symptoms varied in different diseases, but, upon the whole, there was weakness, irregularity of the pulse and heart impulse, tachycardia or bradycardia, a broadening of the heart dullness and bruits heard most commonly over the apex, the mitral and the tricuspid area, but frequently also over the base. To this class

belonged the two cases referred to in his contribution to Jacobi's "Festschrift." Diphtheria, of all the acute infections, most frequently produced myocardial insufficiency, and was most common during the end of second and third weeks. Too much stress could not be laid upon the fact that pure myocarditis was not the only cause that produced heart death in diphtheria, for there were at least two other processes that complicated it. The first was the effect of the diphtheria toxin upon the cerebral vaso-motor centres causing a dilatation of the blood vessels and, therefore, the blood was not properly propelled. The result was the heart simply "bled itself" into the splanchnic area and, after a time, very little blood flowed into the right heart. The second method of complicating the clinical course was an infection of the vagus. It had been thoroughly established that, in diphtheria, the vagus was frequently affected and it had been established that in a large number of infectious diseases there was arythmia. Diphtheria arythmia was due to disturbance of the vagus.

Next to diphtheria, his experience with myocardial insufficiency had been with septicemia of influenza. All the cases he had seen had been accompanied by more or less cardiac change, and the worst case in children that had come under his observation and which recovered, he reported in detail.

Treatment. — For uncomplicated myocardial insufficiency the first principle was absolute rest. The digitalis group of drugs might be used, their efficacy depending upon the amount of myocardium affected. Predisposing causes should be controlled. According to the severity of the case, stimulants will be demanded. Convalescence should be carefully guarded, and for the purpose of strengthening the myocardium mechanical means were invaluable. Laxatives that acted too violently should be avoided. Strychnia might be used for its general tonic effects; except in toxic doses it had no effect upon the heart nor upon the vaso-motors. Nitroglycerine should never be used unless there be angina attacks. His own method which had been productive of good in two cases was as follows: Hypodermic injections of adrenalin; the effects are transitory and, therefore, the dose must be repeated every two hours. Saline transfusions were used in the beginning in order to keep up the heart's contractions. Ice-bags were put upon the abdomen, stimulating the splanchnic reflex. In one child he was able to bring down the pulse from 140 to 60 by the use of these alone. After the most violent symptoms have passed over, then caffein and soda salicylate are given every two hours, alternating with the adrenalin, which was gradually dropped.

DR. THOMAS M. ROTCH said that all got cases of acute dilatation of the heart which lasted but a short time, and these cases should be treated with absolute rest as advocated. He thought the great importance of the paper just read was in drawing attention to certain points which the general practitioner did not, as a rule, recognize.

DR. A. JACOBI said that only during the last twenty or twenty-five years had much attention been paid to the myocardium, and only during the last ten or twelve years had the profession awakened to the necessity of studying the myocardium and its diseases more. Now we knew that we have could a pericarditis, an endocarditis and a myocarditis at one and the same time; autopsies showed this to be true. It was Engelman of Boston and others that had shown the importance of the heart muscle removed from the influence of the nervous system, and since then more or less attention had been paid to it and its changes. There were two forms of myocarditis, — the simple parenchymatous degeneration and the real interstitial inflammation. Now and then one came in contact with an old cicatricial condition more or less extensive. The parenchymatous degeneration showed itself in different ways. Some years ago a Chicago doctor stated that this degeneration went as far as fragmentation, but that was a mistake; he mistook post-mortem for ante-mortem changes. Fragmentation no longer appeared in the textbooks. There might be a parenchymatous change, the result of bacteria or toxins, which was spoken of as inflammation, a myocarditis. Such changes could be seen in every infectious disease. In pneumonia we knew the particular danger was not so much during the acute stage, but when the crisis came; then all at once the temperature fell, the pulse fell and became irregular, sometimes collapse and death. Toxins must have developed in the course of the disease, which gave rise to the particular symptoms that were heart symptoms.

DR. JACOBI said that Dr. Forschheimer was correct when he stated that myocarditis, which chiefly affected the right heart, would be accompanied by liver swelling. With this swelling of the liver there might be edema of the hands, feet and face. The swelling of the liver meant in the beginning of the disease a myocarditis and not an endocarditis. We know that endocarditis may exist for a long time, months and even years, before we note swelling of the liver. In myocarditis we might find no enlargement whatever. He said it was quite characteristic to find a moderately enlarged heart in cases where heart symptoms had existed for years. Often myocarditis was localized more about the mitral than the aortic valve, and that might account for an incorrect diagnosis being made. If a murmur existed for a long time, whether local or disseminated, with no increase in the size of the heart, that meant a myocarditis; there were far more cases of myocarditis without enlargement of the heart than with.

In a few years from now he believed the question of toxins or bacteria would possibly be different. Only lately Vaughan and Ehrlich had made interesting observations. Vaughan believed that the poison of diphtheria was not one poison, but at least two; he attributed the paralysis from diphtheria to a different poison from what gives rise to the earlier symptoms.

With regard to treatment, there was nothing he avoided or disliked more in acute myocarditis than digitalis, which not only caused contractions of the heart, but also the arteries. The labor placed upon the heart after fair doses of digitalis he considered to be too great. The same applied to strychnine. He relied more upon cold applications to the heart, such as ice-bags for a short time, and opiates, especially codeine. He also liked the iodides. Absolute rest was to be enforced, especially rest in bed.

DR. F. FORSCHHEIMER said the object of his paper was to attempt to establish some form of treatment in myocardial insufficiency, in both the acute and chronic cases. He presented two clinical pictures, one a myocardial insufficiency due to a pure and simple myocarditis, the other as a complication. In treating myocarditis he said he never would think of using digitalis, but would insist upon rest and particularly rest in bed.

THIRD DAY — WEDNESDAY, JUNE 1.

ASTHMA IN INFANTS AND CHILDREN, WITH AN ANALYSIS OF FORTY-THREE CASES.

DR. L. E. LA FETRA read this paper, stating that, during the past two years, 43 cases of spasmodic or bronchial asthma had come to his notice occurring in

infants and children under twelve years of age. During the past twenty months there were 4,360 new patients in the Children's Department of the Vanderbilt Clinic, and among these it was noted that there was an average of 25 cases of bronchitis, not including any form of pneumonia, to one case of asthma.

Age of incidence. — Eleven cases occurred during the first year of life (8 males and 3 females). Eight cases occurred during the second year of life (6 males and 2 females). Nine cases occurred from two to five years (8 males and 1 female). Fifteen cases occurred from five to twelve years (10 males and 5 females).

Race. — The nationality of the patient was given as follows: United States, 16; German, 8; Swedish, 2; Dutch, 1; Irish, 6; United States (colored), 2; Hebrew, 9. It seemed to him remarkable that no Italians and only two negroes were in this list, because one would expect rickets to be an important predisposing factor, as it was in the case of spasmodic croup and bronchitis.

Length of time the asthma had persisted. — At the time the patients came under treatment, the disease had existed less than three months in 9 cases, from three to six months in 5 cases, from six to twelve months in 4 cases, from one to three years in 9 cases, from three to six years in 5 cases, and over six years in 3 cases.

Family history. — This was asthmatic or rheumatic, tuberculous or neurotic in many cases, but the answers were not reliable enough to be suitable for statistical purposes.

Abnormalities of development. — These were marked in several cases, especially where the symptoms began at birth or during the first year of life. There was pulmonary atelectasis in 2 cases, an enlarged thymus gland in 2 cases, pigeon breast in 1 case, and 2 of the children were prematurely born and 1 was of the Mongolian type of idocy.

Previous personal history. — Twenty had previously suffered from bronchitis; 7 had had broncho-pneumonia. Altogether, 27 out of 43 patients had had some pulmonary inflammation preceding the attack of asthma. Rickets was present in 8 cases. One patient had suffered from chorea.

Cause of the attack. — In 14 bronchitis, in 1 broncho-pneumonia, in 2 pneumonia, and 1 in each of the following: Gastric indigestion, a drive against a cold wind, a fall, and an attack of malaria.

Frequency and severity of the attacks. — In 8 cases they occurred daily or with no stated intermissions; in the others the periods varied from two weeks to "every winter" or "every summer." The attacks were worse by day in only 2 cases. Three cases only were distinctly worse during the hot weather.

Complications. — Emphysema was associated with asthma in 6 boys and 4 girls; 5 of these had the square or barrel chest. Emphysema with bronchitis was present in 2 girls and 3 boys, and only 1 of these had a barrel chest.

Abnormalities of the naso-pharynx. — These were associated as follows: Congenitally high-arched palate (without adenoids) in 1 case, deflected septum in 2 cases, adenoids and enlarged tonsils in 20 cases. Nearly one half of these cases suffered from adenoid growths, and this was quite a significant fact.

Symptomatology. — During the attacks there was the same wheezing, whistling, breathing and dyspnea, all the accessory muscles of respiration being called into action. The patients were usually relieved by sitting up or by raising the shoulders and supporting the elbows. Cyanosis might be present. In the younger children there was the sinking in of the suprasternal and supraclavicular notches and at the insertion of the diaphragm into the ribs; while in the older children the whole chest moved upwards with even less expansion. Towards the end of the paroxysm the chest might become barrel-shaped, but after the attack the chest became normal in outline. A bronchial fremitus was present in most cases. The percussion note was somewhat dull early, but toward the end of the attack it might become hyper-resonant. Dry squeaking or whistling, musical or sonorous rales, during both respiratory acts were noted in uncomplicated cases. The inspiratory sounds were louder, while the expiratory sounds were more prolonged. The chest sounds could be heard at a distance of twenty or thirty feet. Very little air entered the chest. Short and dry cough was present, but became looser toward the end of the attacks. Older children expectorated somewhat. Spirals or crystals had not been looked for. Spontaneously, or after sedatives, the respirations became less and less noisy and rapid. The sibilant rales were replaced by large sonorous and mucous rales, and soon only a few large, moist rales and sonorous breathing remained. The temperature rarely went above the normal. The leucocytes were usually increased. A differential count showed a constant and usually marked increase in the number of eosinophiles. The differential count of leucocytes he considered to be of diagnostic as well as prognostic value.

Diagnosis. — He said that if it was kept in mind that asthma did occur in infants and children, there would be encountered few difficulties in making a diagnosis. The presence of an increased number of eosinophiles, together with speedy recovery and with recurrences, would confirm the diagnosis.

Pathogenesis. — The peculiar type of breathing was induced by a narrowing of the lumen of the bronchial tubes, but the cause of this had been productive of much discussion. At present there were two theories worthy of consideration: (1) Asthma was due to a spasmodic contraction of the bronchial muscles, *i. e.*, spasm of the smooth muscle fibres of the smaller and medium sized bronchial tubes. (2) Narrowing of the lumen of the bronchial tubes was due to vaso-motor tumefaction or paresis, a sort of angioneuritic edema or urticaria of the bronchial mucous membrane. This theory was supported not only by experimental evidence, but by analogy and by the clinical results of certain forms of treatment.

Etiology. — These patients had a peculiar susceptibility to irritations of the upper air passages and to reflexes physiologically connected with the pneumogastric and probably with the sympathetic nerves. There was an abnormal response to normal stimuli; it was an exaggeration of the activity of the normal protective reflex. The condition might be asthmatic by reason of asthmatic, gouty and neurotic inheritance, or from previous attacks of pulmonary inflammations, or the susceptibility may be strictly a local one, from naso-pharyngeal adenoids, polypi, elongated uvula, etc. It was difficult to discover the exciting cause of the attacks in children.

Treatment. — A careful study of the patient's history and physical signs will suggest in almost all cases the rational and successful line of treatment. Predisposing and exciting causes should be removed. The attacks are to be treated on the basis of their pathogenesis. The general condition should be toned up by hygienic and dietetic measures. Bronchitis, adenoids, naso-pharyngitis, etc., were all predisposing factors and should demand attention. The prevention of taking cold involved the whole hygiene of the child and should be attended to by the daily sponge bathing, exercise in open air, proper ventilation of the nursery,

day and night, etc. Adenoids and enlarged tonsils should be removed. In his series of cases, eight gave evidences of the value of this, although in others there were no signs of improvement. Hypertrophic rhinitis, polypi, deflected septa, etc., should receive due attention. The toilet of the nose, as suggested by Jacobi, should be practiced. The treatment of the patient's general condition should be considered and attempts to tone up the respiratory mucous membrane should be made. In cases of long standing and for subacute cases, he believed that nothing took the place of iodide of potassium.

In infants when the attack closely resembles capillary bronchitis, steam inhaled after being impregnated with creosote was very satisfactory in relaxing the spasm. In older children stramonium paper, nitrite papers, alone or in combination, were of value. As soon as the infant could swallow, tartar emetic and ipecac should be given, along with some nitroglycerine; this he believed to be particularly efficacious when the attack resembled a bronchitis of the finer tubes. Another plan he had adopted with success had been the giving of atropin until the face flushed. The susceptibility to this flushing varied in infants. If the attack was accompanied by gastric indigestion the stomach should be at once emptied, preferably by syrup of ipecac. In long standing cases and in older children the old emphysema mixture gave good results in his hands, *i. e.*, the mixture containing morphine sulphate, belladonna and spirits of ether comp.

On the theory that the attack was due to vaso-motor paresis, vaso-constrictors should be given. The suprarenal extract solution and the adrenalin chloride solution for instillation he had used with marked benefit in some cases. The outlook for asthmatic patients was good inversely in proportion to the length of time the symptoms had existed and the frequency of the attacks. Altogether the prognosis was favorable if the cases could be put upon a proper treatment before emphysema and the barrel chest have developed.

(To be continued.)

Recent Literature.

Functional Diagnosis of Kidney Disease with Especial Reference to Renal Surgery. By DR. LEOPOLD CASPER, Privat Docent, and DR. PAUL FREDERICK RICHTER, Asst. der III Med. Klinik. Berlin. Translated by DR. ROBERT C. BRYAN, Asst. Prof. Genito-Urinary Diseases, University Medical College, Richmond, Va., and DR. HENRY L. SANFORD, Resident Surgeon, Lakeside Hospital, Cleveland. P. Blakiston's Son & Co. Philadelphia. 1903.

This book of 233 pages is a translation from a German publication intended to illustrate the utilization of data obtained by the more recent methods of renal examination for the purposes of diagnosis of pathological conditions of the kidney. The conclusions of the authors are based on the materials collected during a period of several years of observation, and experimental investigation. In their preface to the American translation they claim that they have repeatedly been able to demonstrate during the two years which have elapsed since the publication of the German edition that their system of diagnosis is "built on a sound and fruitful basis" and that the important facts have been confirmed on all sides. In general they aim to estimate the total amount of work done by the kidneys; whether it is sufficient or not for the body; and finally to decide how much of this work each kidney does.

The methods of examination are described, such as inspection, percussion, palpation, actionography, cystoscopy, urethral catheterization, and operative inspection and are briefly discussed, but without contributing information of unusual practical value. The section is an argument to demonstrate the fact that it would be of great value to a surgeon if he had some means at hand by which he could know positively the existence, or the condition, of the other kidney when he planned a serious operation on its mate, a fact concerning which there is no difference of opinion.

The main part of the book is devoted to a discussion of the means at hand of investigating the functional condition of the kidneys by a study of their excretory products. Among other things the authors consider the methods depending on the elimination of substances introduced artificially into the system as a measure of renal excretion, the toxicity of the urine, molecular blood concentration, the phloridizin method and the "methylene blue" test. Sixty pages are devoted to the enumeration of their experimental investigations. Their conclusions are summarized in the final pages which is the most interesting and practical part of the volume.

The book as a whole will probably be read by only a limited class, *viz.*, those especially interested in the laboratory side of the question discussed. The work of the writers is apparently well done and represents a great deal of labor in the collection of the data presented.

A Textbook of Histology, including Microscopic Technic. By A. A. BOHM and M. VON DAVIDOFF. Edited, with extensive additions to both text and illustrations by G. CARL HUBER. Second edition, 528 pages, with 377 illustrations. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

A *Textbook of Histology*. By FREDERICK R. BAILEY. 481 pages, profusely illustrated. New York: William Wood & Co. 1904.

Dunham's Normal Histology. A textbook on Normal Histology for the use of Students and Practitioners of Medicine. By EDWARD K. DUNHAM. New (3d) edition, octavo, 334 pages, with 260 illustrations. Philadelphia and New York: Lea Brothers & Co. 1904.

The three manuals, which we are to review, correspond to the progress of the science of histology as a practical subject of medical instruction in this country. They are all of them greatly superior to any textbooks which we had a few years ago and they all can be recommended as meritorious of their kind. They represent in various degrees of thoroughness the recent progress of histology, and show, by the care which the publishers have taken with regard to the get-up

of the volumes, the recognition of the demands of the science for adequate, well-printed illustrations.

Of the three volumes before us, the first place undoubtedly belongs to the second edition of Professor Huber's textbook, which is an exceedingly meritorious publication. By using more care the mechanical appearance of the book has been greatly improved, and the illustrations, which in the first American edition were somewhat coarsely printed, now appear in very much clearer impressions, greatly to the advantage of the student. Throughout it shows the editor's care. Many new figures have been added, the text has been extended by some forty pages, and a very large number of recent discoveries have received attention. It may in short be said at once of this textbook that it is of a very high character and should be most cordially recommended, for the authors are masters of the subject, can speak with authority, and have taken pains to render their descriptions clear, instructive and interesting.

Quite so high an opinion cannot be expressed concerning the other two volumes, for Dr. Dunham and Dr. Bailey seem to have been contented to rely in considerable part upon various of the larger textbooks of anatomy and histology, and to occupy themselves only to a limited extent with recent original investigations. Both volumes contain a considerable number of original illustrations, those in Dr. Bailey's book being perhaps in larger proportions than in Dr. Dunham's. They are both considerably shorter; Dr. Dunham's very much shorter, as regards the length of the text, than the volume prepared by Professor Huber. In view of the inequality of the value of these three manuals, it seems unnecessary to enter here upon detailed criticisms, which could only serve to point out various inaccuracies in the several publications without aiding in the formation of an opinion as to their relative merits and usefulness. For it is clear that the volume first on our list is much more valuable than the other two.

A Textbook of the Diseases of the Nose and Throat. By D. BRADEN KYLE, M.D., Professor of Laryngology and Rhinology, Jefferson Medical College, Philadelphia; Consulting Laryngologist, Rhinologist and Otologist, St. Agnes' Hospital. Third edition. Philadelphia, New York and London: W. B. Saunders & Co. 1904.

This is the third edition of the work which was reviewed in the JOURNAL of April 5, 1900. The only addition of value is the author's fuller description of his method of correction of deviation of the septum by V-shaped excisions. A little has been added insisting on the importance of an understanding of the chemistry of the saliva, and recommending its careful study, but without giving any practical details on the subject. The author believes that hay fever, for instance, may be proved to be a disturbance of proper chemical balance, but he omits the work of Dunbar in this direction. A few pages on epidemic influenza have been added, and a good description of keratosis, also a short description of the injection of paraffin for the correction of deformities.

Pathology throughout the book is elaborated to an extent which suggests the result of hard work, not entirely devoid of enthusiasm and imagination. This is at times a source of confusion to the reader and detracts from the clearness which is valuable in a general textbook. An improvement toward easier reference has been made in this edition by printing each subject at the top of the page on which it appears.

The Medical Epitome Series. Toxicology. By EDWIN WELLES DWIGHT, M.D., Instructor in Legal Medicine, Harvard University. Series edited by VICTOR COX PEDERSEN, A.M., M.D., Instructor in Surgery and Anesthetist and Instructor in Anesthesia at the New York Polyclinic Medical School and Hospital, etc. 12mo volume, 298 pages. Philadelphia: Lea Brothers & Co.

This work is a brief compendium of the facts in connection with toxicology. It is intended more especially for the use of students and not as an exhaustive treatise. The subjects considered are irritant poisons, specific metallic, vegetable and animal irritants, poisonous foods, cerebral, spinal and cerebrospinal neurotics, depressants, asthenics and ptomaines. Under the appropriate headings the various drugs and chemicals which may produce poisoning are considered. For example, under metallic poisons we find arsenious acid, its properties, symptoms of poisoning, poisonous dose, fatal period, treatment of poisoning, post-mortem appearances, tests and illustrative cases of poisoning by arsenious acid. The book is well written and will undoubtedly be found valuable to students and to those who do not desire a comprehensive treatise on the subject of toxicology. J. B. O.

Saunders' Question Compends: Essentials of Chemistry, Organic and Inorganic. Containing also questions on Medical Physics, Chemical Philosophy, Medical Processes, Toxicology, etc. By LAWRENCE WOLFF, M.D., formerly Demonstrator of Chemistry at the Jefferson Medical College, Philadelphia. Sixth edition, thoroughly revised. By A. FERREE WITMER, Ph.G., formerly Assistant Demonstrator in Physiology at the University of Pennsylvania. 12mo volume of 225 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

The fact that this little book has reached its sixth edition is evidence of its usefulness and popularity. The recent discoveries in physics and inorganic chemistry have rendered it necessary to make extensive additions to almost every part of the work. The portions on organotherapy and the substituted ammonias have been revised and extended. For a question compend the book is unusually good.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, NOVEMBER 17, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

THE MEDICAL AND DENTAL PROFESSIONS.

WE have previously urged the desirability of a closer union of the medical and dental professions and an increased sympathy in each other's aims. However we may argue the matter, it is clear that the teeth and the mouth cavity are an integral and essentially important part of the organism which should receive the consideration on the part of the physician which other organs receive. That this is not the fact is clearly apparent. Medical students know absolutely nothing of technical dentistry, and little of the significance and far-reaching importance of caries of the teeth.

So far as we are aware, the modern, highly-developed medical school offers no course, optional or otherwise, on the subject of the teeth in relation to health from the dentist's point of view. The inevitable consequence of this is that, while yet a student and later as a practitioner, the medical man remains in ignorance of the profound significance of the conditions in the teeth, jaws and mouth cavity in the production of diseases which come wholly within his province. This is an anomalous state of affairs which undoubtedly should be corrected, and may be corrected with a small expenditure of time and energy. It is naturally not to be maintained that the medical student should become acquainted with the technique of dental operations, but simply that he should know the teeth as well as he knows other bony structures, and should also be competent to form a fairly shrewd opinion regarding diseases to which the teeth are subject.

A striking case, illustrative of the tendency to which we refer, has recently come to our notice. A patient in perfect health to all appearance had passed through the hands of several physicians, one of whom diagnosticated her difficulty as neurasthenia, another as a threatened apoplexy with alarming prognosis. The symptoms in the case were referable to the face, although not of the ordinary character of a trifacial neuralgia. The cause, as finally discovered after the patient had suffered much anxiety of mind and physical discomfort, was deep-seated disease of the roots of two teeth, which, when discovered and treated, led to immediate relief. Such mistakes on the part of physicians are reprehensible, particularly since they might easily be avoided. The fact is, the ordinary physician too rarely examines the teeth carefully; the mouth may be investigated, tongue and tonsils and the teeth superficially, but any attempt to discover a deep-seated source of irritation, so far as our experience goes, is neglected even by those physicians who pride themselves on thoroughness in physical examination.

Our attention has been called anew to the matter by an admirable, succinct paper in a recent number of the *Lancet* by R. Denison Pedley of London. Mr. Pedley arraigns the medical profession for its carelessness in this matter, and points out the very great advantage to the diagnostician and practicing physician which a knowledge of dentistry implies. In describing the condition in London, he says that in most of the hospitals where medical students are trained, one or two dental surgeons are appointed, but the subject is optional and in general neglected. In this country we believe that our hospitals do not even provide this possibility of instruction. He points further to the fact that in certain examinations required for medical practice, not once in ten years has a single question been asked upon dental caries. When confronted with the deficiency, the ordinary answer is that the medical student is already overburdened, an argument clearly which cannot apply, any more than the omission of technical training in the examination of the heart or lungs, if it be shown that dental disease is a common source of clinical symptoms.

Ten years ago the British Dental Association published statistics showing that 85% of the school children in the United Kingdom have defective teeth. Unfortunately, these conditions are neglected, with the natural consequence that much damage is done, not only to the teeth, but also to the general health in many cases, before the children finally fall into the hands of competent dentists. It is urged, and we think with much reason, that in final examinations the student should at least expect the possibility of a question

on the causation, effect and treatment of dental caries. So far as the medical profession is concerned, the question is not one of personal treatment but rather of early recognition of the significance of dental disease on the health, development and physical condition of children. No doubt public opinion has been aroused during the last few years as never before, but much still remains to be done toward a closer relationship between the physician and the dentist. Every physician should at least be prepared to refer intelligently his patients to a dentist when circumstances warrant. That this is not now the fact is illustrated by the case reported above. We are of the opinion that a prescribed course on the relation of the teeth to general nutrition and to physical conditions in general should be provided in every well-equipped medical school to the end of drawing attention to what must be recognized as a factor of importance in the production of certain disorders with which every medical student should be acquainted.

A GREAT SANITARIAN.

JAMES B. RUSSELL, B.A., M.D., LL.D.

IN the death of Dr. Russell at Edinburgh, Oct. 22 last, the world has lost the last of that famous group of great men who have made modern sanitary science what it is to-day, and who so justly earned the gratitude of mankind for their splendid work as pioneers in improving the conditions of living and mitigating the ravages of death and disease, to which they had devoted essentially their whole lives. Chadwick, Farr, Lindley, Rawlinson, Sutherland and Simon had already found their well-earned rest.

After graduating at the high school and the university in Glasgow, Dr. Russell became for a year the assistant of Lord Kelvin, to whom he always said that he owed his scientific ardor and methods. He then spent three years in the medical school, and thereafter immediately became resident physician to the fever wards of the Glasgow Royal Infirmary, where typhus fever was then rife.

Sir Edwin Chadwick had said of Glasgow, in his epoch-making report, "It might admit of dispute, but on the whole it appeared to us that both the structural arrangements and the conditions of the population of Glasgow was the worst of any we had seen in any part of Great Britain," and Dr. Sutherland of the General Board of Health had emphasized that opinion seven years later by saying, "All sanitary evils exist there in perfection." Dr. Russell found his opportunity and began his reforms on the principle which he adopted for his life, "Firstly, by making up his mind that a thing was possible; secondly, by making up his mind that it should be done; and thirdly, by resolute pegging away at the doing."

Sir W. T. Gairdner was made the first medical officer of health of Glasgow in 1863, and he at once selected Dr. Russell as his right-hand man in placing him at the head of the new fever hospital. After nine years of brilliant service there, Gairdner resigned his office and Russell was his master's logical successor. For a little more than a quarter of a century he held the position with unrivalled distinction, and then became the chief medical officer of the Local Government Board of Scotland, a position which he might have had earlier, except that he wished to finish certain improvements and reforms where he was. It was a great grief to him to give up his home and its associations on the Clyde and the streets and wynds and closes of the old Scotch city that he loved so well, and so many of which he had transformed from pestilence breeders to comfortable living places, but he felt called by the larger duties.

Dr. Russell was an indefatigable worker and a voluminous writer. He was the first editor of the *Glasgow Medical Journal* after its resuscitation in 1868. To his clear, concise, direct and forcible use of the Scotch vernacular he owed his great power of convincing his municipal boards and his most conservative opponents in his reforms, a feat which one should have once seen and heard to fully appreciate. To an upright character and a charming personality he added the methods of the man of science and the fervor of the enthusiast for humanity.

In his "History of Sanitation in Glasgow" he says, "The first ten of these forty years (1855–1895) represent the period of awakening and groping for an instrument and a method; the remaining thirty, the period of resolute endeavor working through a developing organization and becoming year by year more precise in direction, so that every ten years represents a stage in administrative progress." While his influence has been widespread in other countries as well as in Great Britain, his monument is his beloved city.

AN EXTENSION OF MEDICAL CHARITY.

WE learn from the *Medical Record* that the regents of the University of Michigan have ruled that the medical faculty of that university must give gratuitous medical and surgical treatment

to everybody applying, whether rich or poor. It is not to be wondered at that a local medical society has passed resolutions protesting against such a ruling on the ground that physicians are thereby deprived of their rights, and that such a measure is detrimental to the best interests of the medical profession.

The question of the gratuitous treatment of patients at hospital clinics is notoriously one of the most difficult with which the management of institutions has to deal. If the report before us is correct, the University of Michigan has taken the bull by the horns and accepted the fact that a line is practically impossible to draw, and that for the good of the clinic, rich or poor should alike be served. We have no intention at this time to discuss in detail the correctness or the incorrectness of this standpoint. From the point of view of the teaching staff much may be said in favor of admitting for treatment the case valuable for instruction, whatever his social status may be. On the other hand, we have a large measure of sympathy for the great majority of physicians who stand outside the pale of the university and whose support is dependent upon their practices. We are, on the whole, strongly of the conviction that a limitation of the number of patients admitted to free treatment will conduce to the greatest good of the greatest number, rather than the policy which disregards wholly the social condition. In the long run, both the community and the profession will be the gainers by restrictive measures. We regret, therefore, this action on the part of the University of Michigan, although the motives which may have brought it about are unknown to us.

MEDICAL NOTES.

THE PROCTOR FUND FOR THE STUDY OF CHRONIC DISEASES. — Attention is called in the advertising columns to this unique and promising endowment. The late Ellen Osborne Proctor bequeathed fifty thousand dollars to the corporation of Harvard College for the purpose of promoting the study of chronic diseases. The income is now available, and is to be devoted to the care in hospitals of suitable cases and to investigations into the nature and treatment of chronic affections.

The committee in charge already has recommended appropriations for the study of metabolism in infants and in osteo-malacia and for an inquiry into the diagnostic value of the abnormal metabolism of fats. Investigations are in progress relating to arterio-sclerosis, arthritis deformans, gastric dilatation and cystinuria. A study of the determination of phosphorus and sulphur in the food, urine and feces, also, is in contemplation.

The terms of the bequest are sufficiently liberal to enable suitable investigations to be made without cost to the patient or physician, and there should be no lack of applicants for the use of this considerable fund designed to serve so humane a purpose as the prevention, cure or relief of chronic suffering.

MEDAL FOR HOSPITAL PLANS. — It is reported that Dr. A. J. Ochsner and M. J. Sturn, both of Chicago, have been awarded a gold medal by the St. Louis Exposition for plans illustrating hospital construction. Various plans were exhibited of a wholly original sort.

COMPARISON OF RACIAL MEDIAN AGES BETWEEN BLACKS AND WHITES. — The median age of negroes, according to the *Medical Record*, is 19.4 years; that is, half the negroes in the United States are below that age. The median age is four years below that of the whites (23.4 years), a difference closely connected with the high birth-rate and high death-rate of the negroes.

A MEMORIAL FOR DR. OSLER. — It has been repeatedly reported that plans are being laid for the erection in Baltimore of a building to be used as a library as a tribute to Dr. Osler, to be known as the Osler Memorial Building. The idea originated shortly after his acceptance of the regius professorship of medicine at Oxford. The plans are still chaotic; many suggestions have been made, and the desire to still further honor Dr. Osler appears widespread and enthusiastic. The use of the term memorial, in connection with such a building, is rather more suggestive than appropriate.

THE RUSSIAN CENSORSHIP. — We quote from the *British Medical Journal* the following story of Russian censorship:

"The following story affords a striking illustration of the methods and results of the Russian Censorship. Vassili Yaruishkin, a brilliant graduate of Moscow University, recently died there in poverty at the age of fifty. Twenty-three years ago he wrote a work on physiology, embodying a number of discoveries which were considered by his scientific friends to be of great importance. The manuscript went to the censor in 1883. It never came back. Again and again the author applied for permission to print, and for the return of his manuscript. He accumu-

lated a drawer-full of formal replies, stating that the matter would receive attention. Soured and disappointed he never undertook other work. On the morning of the funeral a packet of manuscript arrived at the house where he died, with the stereotyped approval of the censor expressed in a formal note."

PANAMA, JAN. 2–6, PAN-AMERICAN CONGRESS. — Dr. Rudolph Matas, secretary of Section of General Surgery for the United States, asks those who wish to contribute papers to send titles to him at 2255 St. Charles Avenue, New Orleans. He also announces that the United Fruit Company's agents are offering as a special inducement to American "Congresistas" a reduction of the regular fare for the round trip from New Orleans to the Isthmus to $50, that is, $25 each way. The steamers leave New Orleans every Friday; the last steamer to leave New Orleans in time for the opening of the Congress will sail on Dec. 30, 1904, at 11 A.M. It takes about four and one-half days to reach Colon and seven days on the return trip on account of a stop-over at Port Limon, where ample opportunity is given to tourists to visit San Jose, "the beautiful capital of Costa Rica — 'the Paris of central America' — where the most picturesque tropical scenery can be seen at this season, under the most favorable conditions."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Nov. 16, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 53, scarlatina 24, typhoid fever 19, measles 17, smallpox 0.

FIRE AT NEW HAMPSHIRE HOME FOR FEEBLE MINDED. — Fire broke out Nov. 14 at the new dormitory at the State Home for Feeble Minded Children at Laconia, N. H., which resulted in its destruction. Through the excellent system which had been established by the superintendent and through the efficiency of the matron and instructors the sixty-seven inmates were rescued. Not much regret is expressed at the loss of the building, which will amount to about $20,000, insured for a little over $6,000. It is probable that a more commodious building will be erected in its place.

NEW YORK.

HOSPITAL FOR TUBERCULOSIS. — At a meeting of the board of trustees of the New York State Soldiers' Home, at Bath, held Nov. 10, the expenditure of $30,000 was authorized for the erection on the grounds of a hospital for tuberculosis patients.

A CENTENARIAN. — Martin McMahan of Ballston Spa, N. Y., died suddenly on Nov. 7, at the reputed age of 104 years. He had enjoyed remarkably vigorous health up to the last, and was anticipating voting at the presidential election.

BEQUESTS. — By the will of Mrs. Sarah B. King, just admitted to probate, a large amount is left to charities. Among the institutions named are the Mount Sinai Hospital, which receives $10,000, and the Montefiore Home and Hospital for Chronic Invalids, which receives $5,000.

AIR OF THE SUBWAY. — Since the opening of the new subway to the public there has arisen some question as to the purity of the air in the tunnel, and with a view to determining the exact condition, the Board of Health has appointed Prof. Charles F. Chandler of Columbia University as consulting sanitary engineer to make a thorough investigation and report upon the matter.

THE PLACE OF RESEARCH IN THE UNIVERSITY MEDICAL SCHOOL. — The Harvard Medical Society of New York City wishes to announce that Prof. Theobald Smith of Harvard University will deliver an address upon "The Place of Research in the University Medical School" in Hoosack Hall, New York Academy of Medicine, Nov. 26, at 8.30 P. M. Members of the medical profession are cordially invited to attend.

HONORARY DEGREES AT COLUMBIA UNIVERSITY. — At the commemoration of the one hundred and fiftieth anniversary of Columbia University on Oct. 31, the following physicians were honored with the degree of Doctor of Laws: Drs. Francis Delafield, E. G. Janeway, Wm. M. Polk, John G. Curtis, Wm. H. Welch, Walter B. James and A. J. McCosh. The following received the honorary degree of Doctor of Science: Drs. Wm. Halsted, M. A. Starr, Geo. S. Huntington, and E. J. Lederle. After the presentation of the degrees, President Butler announced the founding of several new chairs in the University in memory of men who had contributed to the early growth of the institution. Among these were the following: The Bard Professorship of the Practice of Medicine (in honor of Samuel Bard, Professor of the Practice of Physic in the King's College medical

school, 1767–76) to which Dr. Walter B. James was appointed; the Mitchell Professorship of Chemistry (in honor of Samuel Mitchell, Professor of Chemistry, 1792–1818) to which Charles F. Chandler, Ph.D., was appointed; and the Torrey Professorship of Botany (in honor of the late Prof. John Torrey) to which L. M. Underwood was appointed.

One Hundred and Fiftieth Anniversary of King's College. — In commemoration of the one hundred and fiftieth anniversary of the founding of King's College in 1754, which has just been celebrated with appropriate ceremonies, the Macmillan Company has published for the Columbia University Press, a history of Columbia University, a volume of five hundred pages, with fifty full-page illustrations. It was prepared under the direction of an editorial committee consisting of Professors Brander Matthews, H. Thurston Peck and Munroe Smith, together with two prominent graduates not members of the faculty, and consists of five books. Book III is devoted to the professional schools; the chapter on the College of Physicians and Surgeons was written by Prof. Frederic S. Lee.

Physical Culture Department at Barnard College. — A new building, with very complete equipment, has been erected at a cost of over $400,000 for the physical culture departments of Barnard College and Teachers' College connected with Columbia University. Among its principal features are a great gymnasium hall, on the upper floor, equipped at an expense of $50,000, and a commodious swimming pool in the basement, surrounded by shower baths and dressing rooms. The building is the gift of Mrs. Frederick Ferris Thompson, one of the trustees of Teachers' College, and is designed as a memorial of her deceased husband. One of the main purposes of the new department of physical education, of which this building will be the home, is the training of teachers of physical culture, and the courses of instruction, under the direction of Prof. Thomas D. Wood of Teacher's College, will be open to the students of Barnard College and the women students of Teacher's College.

Miscellany.

INTERNATIONAL SOCIETY OF SURGERY.

The first Congress of the International Society of Surgery will take place in Brussels in September, 1905, under the presidency of Prof. Theodor Kocher of Berne.

The congress will consist of members of the society only, and will be exclusively devoted to the discussion of subjects announced on the programme.

Programme: 1. "The Value of an Examination of the Blood in Surgery." Reporters: Drs. Keen of Philadelphia; Sonnenburg, Berlin; Ortiz de la Torre, Madrid; Depage, Brussels. 2. "Treatment of Prostatic Hypertrophy." Reporters: Reginald Harrison, London; Ruvsing, Copenhagen; Von Rydygier, Lemberg. 3. "Surgical Interference in Non-Cancerous Affections of the Stomach." Reporters: Mayo Robson, London; Von Eiselsberg, Vienna; Mattoli, Ascoli Piceno; Manprofit, Angers; Rotgans, Amsterdam; Jonnesco, Bucharest. 4. "Treatment of Joint Tuberculosis." Reporters: Bier, Bonn, Broca, Paris; Bradford, Boston; Codivilla; Boulogne; Willems, Ghent. 5. "Treatment of Peritonitis." Reporters: Lennander, Upsala; Friedrich, Leipzig; Lejars, Paris; McCosh, New York; Krogius, Helsingfors; De Isla, Madrid. 6. "Diagnosis of Surgical Diseases of the Kidneys." Reporters: Albarran, Paris; Kimmell, Hamburg; Giordans, Venice; Lambotte, Brussels.

All communications relating to this Congress should be addressed to Dr. Ch. Willems, 6 Place St. Michel, Ghent.

HOSPITAL OF FRENCH BENEVOLENT SOCIETY.

The new hospital of the French Benevolent Society in West 34th Street, near 10th Avenue, was formally opened on Nov. 12. M. Jusserand, the French ambassador, presided at the exercises, and addresses were made by him, by Carl V. Fornes, president of the board of aldermen, and by M. Maillard, president of the French Benevolent Society. This is the third hospital of the name, the first having been in West 31st Street, and the second, occupied up to the present time, in 34th Street, near Eighth Avenue. The cornerstone of the new building was laid on Nov. 18, 1902, by M. Jules Cambon, ex-ambassador from France. It is seven stories in height, with a facade of red brick and limestone. It is thoroughly equipped with modern appliances, and will accommodate 150 patients. There are six wards and thirty rooms for private patients, in addition to a dispensary department. The total cost was $400,000. Of this amount $225,000 has been paid, leaving a mortgage of $175,000. The French government contributed 100,000 francs towards the new hospital, and also some valuable Gobelin tapestries, the sale of which realized a considerable sum. In the evening a dinner was given to Ambassador Jusserand at Sherry's, in honor of the opening of the hospital, and on this occasion M. Gourd, president of the French Chamber of Commerce, presented on behalf of that body a cheque for $500 as a contribution to the building fund.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 5, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Diarrheal Diseases.
New York . .	3,908,644	1,234	330	20.98	16.45	.24	1.54	4.54
Chicago . . .	2,021,086	420	111	23.57	11.67	2.85	1.42	5.00
Philadelphia	1,407,968	386	108	19.94	13.47	2.85	.88	6.21
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	208	54	18.27	9.13	.96	2.40	2.40
Cleveland . .	444,331	—	—	—	—	—	—	—
Buffalo . . .	409,845	—	—	—	—	—	—	—
Pittsburg . .	362,403	124	—	20.16	13.52	—	8.06	3.22
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee . .	335,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	86	24	18.60	10.47	1.16	—	9.30
Boston . . .	617,950	176	41	18.18	15.34	1.70	3.41	1.70
Worcester . .	136,925	48	12	4.16	12.50	—	—	2.08
Fall River . .	119,349	28	11	32.14	10.71	3.57	—	17.85
Lowell . . .	104,402	27	8	14.81	18.51	3.70	—	—
Cambridge . .	100,998	21	8	23.81	19.04	—	—	9.52
Lynn	73,878	14	7	—	—	—	—	—
Lawrence . .	79,348	25	12	12.00	8.00	—	—	8.00
Springfield .	72,020	—	—	—	—	—	—	—
Somerville .	70,413	20	4	—	10.00	—	—	—
New Bedford	68,863	24	11	25.00	16.67	—	—	12.50
Holyoke . . .	50,538	11	4	18.18	—	—	—	9.09
Brockton . .	46,601	9	2	22.22	11.11	—	11.11	—
Newton . . .	39,810	3	3	66.67	—	—	—	66.67
Haverhill . .	39,061	12	4	8.33	16.67	—	—	—
Malden . . .	37,205	6	3	16.67	16.67	—	—	—
Salem	37,188	10	1	10.00	—	—	—	—
Chelsea . . .	36,499	18	6	22.24	11.11	5.55	—	5.55
Fitchburg . .	36,335	8	1	—	12.50	—	—	—
Taunton . . .	34,577	10	1	20.00	30.00	—	—	10.00
Everett . . .	30,209	12	2	—	—	—	—	—
North Adams	29,201	5	2	—	—	—	—	—
Quincy . . .	26,798	7	2	28.60	14.30	14.30	—	—
Gloucester . .	26,131	—	—	—	—	—	—	—
Waltham . . .	25,797	6	1	16.67	16.67	—	—	—
Brookline . .	23,576	1	—	—	—	—	—	—
Pittsfield . .	22,870	5	1	60.00	—	—	20.00	—
Medford . . .	21,956	2	—	—	—	—	—	—
Chicopee . .	21,692	3	1	—	—	—	—	—
Northampton	20,314	3	0	—	—	—	—	—
Beverly . . .	15,807	2	1	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	3	1	—	33.33	—	—	—
Adams . . .	14,745	2	1	50.00	—	50.00	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park . .	14,500	1	0	—	—	—	—	—
Newburyport	14,478	5	0	—	20.00	—	—	—
Woburn . . .	14,315	3	1	—	33.33	—	—	—
Melrose . . .	13,819	6	1	—	33.33	—	—	—
Westfield . .	13,809	2	—	50.00	—	50.00	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	2	0	—	—	—	—	—
Revere	13,909	1	1	—	—	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,324	1	1	—	—	—	—	—
Southbridge .	11,716	6	1	66.67	50.00	—	—	—
Watertown .	11,575	5	2	40.00	—	—	—	20.00
Weymouth . .	11,350	2	0	—	—	—	—	—
Plymouth . .	11,139	3	—	—	—	—	—	—

Deaths reported, 3,016; under five years of age, 784; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 604; acute lung diseases 421, consumption 310, scarlet fever 16, whooping cough 9, cerebrospinal meningitis 9, smallpox 2, erysipelas 4, puerperal fever 11, measles 11, typhoid fever 51, diarrheal diseases 140, diphtheria and croup 41.

From whooping cough, New York 5, Chicago 3, Philadelphia 1. From measles, New York 5, Chicago 2, Pittsburg 3, Haverhill 1. From scarlet fever, New York 9, Chicago 1, Philadelphia 2, Baltimore 2, Pittsburg 1, Boston 1. From cerebrospinal meningitis, New York 5, Baltimore 1, Pittsburg 1, Worcester 1, Southbridge 1. From erysipelas, New York 3, Philadelphia 1. From smallpox, Chicago 2.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Oct. 22, the death-rate was 15.9. Deaths reported 4,661; acute diseases of the respiratory organs (London) 127, whooping cough 42, diphtheria 75, measles 127, smallpox 5, scarlet fever 30.

The death-rate ranged from 7.1 in Hornsey to 23.7 in Hanley; London 16.6, West Ham 15.4, Brighton 14.9, Plymouth 11.0, Bristol 14.3, Birmingham 18.7, Leicester 14.0, Nottingham 14.9, Birkenhead 18.2, Liverpool 22.4, Wigan 8.3, Bolton 17.5, Manchester 17.3, Salford 23.2, Halifax 15.0, Bradford 13.9, Leeds 14.5, Sheffield 15.2, Hull 19.7, Newcastle-on-Tyne 19.4, Cardiff 8.9, Rhondda 14.9, Tottenham 11.1, Merthyr Tydfil 13.6.

METEOROLOGICAL RECORD.

For the week ending November 5, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 30	30.26	38	46	31	52	49	50	N	N	16	10	C.	C.	0
M. 31	30.28	37	47	27	56	35	46	N	W	9	3	O.	C.	0
T.. 1	30.20	46	53	38	41	63	52	W	N	9	14	O.	C.	0
W. 2	30.42	40	46	33	64	69	66	N W	S	5	8	C.	C.	0
T.. 3	30.11	48	56	41	73	81	77	S	S W	11	12	O.	C.	0
F.. 4	29.92	50	55	44	84	74	79	W	E	9	10	C.	O.	0
S.. 5	29.73	38	44	31	71	65	68	N	N	15	10	O.	C.	0
☞	30.13		50	35			63							.0

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING NOVEMBER 12, 1904.

D. O. LEWIS, medical inspector. Detached from the "New York" and ordered to the "Chicago."

F. M. FURLONG, passed assistant surgeon. Detached from the "Chicago" and ordered to the "New York."

E. M. BROWN, assistant surgeon. Detached from the "New York" and ordered to the "Chicago."

SOCIETY NOTICE.

THE FOURTH ANNUAL MEETING OF THE NATIONAL ASSOCIATION FOR THE STUDY OF EPILEPSY. — The fourth annual meeting of the National Association for the Study of Epilepsy, etc., will be held in the Medical Library, The Fenway, Boston, on Nov. 22 next. The first session at 2.30 P.M.; evening session, 8 P.M. The Association invites all persons interested in the welfare of epileptics and in charity work generally, to attend this meeting.

Among the papers to be read are the following: 1. Presidential Address: William N. Bullard, M.D., of Boston. 2. The State's Relation to the Epileptic; Owen Copp, M.D., Executive Officer of the Massachusetts Board of Insanity, Boston. 3. The Prognosis of Epilepsy: William Alden Turner, M.D., of London, England. 4. The Influence of Puberty and Adolescence in the Etiology of Epilepsy: William P. Spratling, M.D., of Sonyea, N. Y. 5. Certain Aspects of the Differential Diagnosis between Hysteria and Epilepsy: Drs. J. J. Putnam and G. A. Waterman, of Boston. 6. Some Observations on the Treatment of Epilepsy: Daniel M. Brower, M.D., of Chicago, Ill. 7. Spectrum Analysis of the Blood in Epilepsy: J. W. Wherry, M.D., of Clarinda, Iowa. 8. Syphilitic Epilepsy: Abner Post, M.D., of Boston. 9. (*a*) Observations on Blood Pressure in the Epileptic. (*b*) Lantern Slide Illustrations of Cases, and of the Massachusetts Hospital for Epileptics: Dr. Everett Flood, of Palmer, Mass. 10. Ten Cases on Special Treatment: Drs. A. O. Morton and R. A. Greene, of Palmer, Mass. 11. Lumbar Puncture in Status Epilepticus: Dr. A. O. Morton. 12. Senile Epilepsy: G. Kirby Collier, M.D., of Sonyea, N. Y.

The objects of the Association are: 1. To promote the general welfare of sufferers from epilepsy. 2. To stimulate the study of the causes and the methods of cure of this disease. 3. To advocate the care of epileptics in institutions where they may (*a*) Receive a common school education; (*b*) Acquire trades; (*c*) Be treated by the best medical skill for their malady. 4. To assist the various States in America in making proper provisions for epileptics.

DR. WM. N. BULLARD, Boston, *President.*
DR. WM. P. SPRATLING, Sonyea, N. Y.,
Secretary and Treasurer.

RECENT DEATH.

JAMES JOSEPH HEALY, M.D., M.M.S.S., died in Newburyport, Nov. 11, 1904, aged fifty-five years.

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheater of the Boston City Hospital on Nov. 18, from 10 A.M. until 12.30 P.M.: Laparotomy; Wiring Tibia; Ventral Herniotomy; Resection of Tibia; Empyema.

Address.

THE IDEAL OF ACCURACY IN CLINICAL WORK: ITS IMPORTANCE, ITS LIMITATIONS.

BY RICHARD C. CABOT, M.D., BOSTON.

I.

When the history of clinical medicine comes to be written I think that the most striking characteristics of this half century will be regarded as, 1. The use of exact methods in diagnosis; 2. The use of instruments of precision; 3. The keeping of full and accurate records. We cannot be too thankful that it is so. I see three ways in which these tendencies have begun to accomplish the cleaning up of the dark places of our professional life.

(*a*) In the first place they have done a great deal to sweep out all such refuse as the concepts of the various *diatheses*. The "lithemic" diathesis; the "gouty" diathesis; the "rheumatic" diathesis, and similar traditions which cannot bear the tests of criticism and disappear when the search light of exact methods is applied to them. We have to thank these modern tendencies for the gradual disappearance from our vocubulary of sentences about "*bilious*" conditions, which now survive chiefly in the vocabulary of our patients, who always seem to know so much more about them than we do. So it is with the "*congestions*" of the brain, of the lungs, of the liver, of which we used to say so much and knew so little. So it is with many of the *anemias* diagnosed purely on the most deceptive evidence, facial color, and with many of the multitudinous affections classed as "*rheumatism*." These remnants of "traditional medicine" it has been the inestimable service of modern scientific methods to sweep out of our path; and I think we may say that the replacement of traditional medicine by scientific medicine is something we cannot seek too eagerly or be too grateful for, as fast and as far as it succeeds.

(*b*) A second inestimable service rendered by the tendencies which I am now describing has been to build up in us habits of mind that are instinctively antagonistic to habits of lying. It is not at first sight obvious how the use of instruments of precision and the insistence on precise methods in their use favors the establishment of truthfulness as a corner stone of our dealings with each other and with our patients. But although this is not obvious, I am convinced that it is true. Anyone who records his cases and makes his observations in an inaccurate or slovenly way, finds his mind filled with a kind of haze. To clear away this haze when he comes to state his results, it is almost inevitable that he should fall into the habit of drawing upon sources other than reality for his materials and for his terms. If, on the other hand, a man has made his analyses, his measurements, and his clinical records accurately and thoroughly, he learns to *lean upon fact* and to have confidence that whatever is true will turn out to work well. Thus he gets out of the habit of improvising, modifying or embellishing his statements to suit traditional or preconceived ideas.

An enthusiastic advocate of manual training in the public schools once said in my hearing that a boy who had had a thorough course in sloyd work would never tell a lie. In this obviously exaggerated statement there is, I think, this much of truth: such a boy will find it much *harder* in the future to lie. The habit of taking our bearings straight from reality, a habit which wood work or any other form of manual training produces, makes us almost helplessly dependent on data observed for every step of our thinking and of our plans. It is as if an actor should get into the habit of being prompted continually from behind the scenes so that he never spoke his lines by rote or found the need of improvising them. The habit of improvising an embellishment cannot be acquired without practice, and the incessant use of scientific methods soon gets us fatally out of practice in the use of lies.

Quite without conscious intention or pious effort, therefore, I believe that our modern methods of medical work are steadily driving out habits of mind that make prevarication and lies of all shades possible.

(*c*) By sharpening the lines between what we know and what we do not know, between what we have achieved and what we have still to achieve, scientific methods of work make true progress possible. For it is only by knowing just where we are and just where our lacks are situated that we become capable of progress.

II.

I think I must have made it clear that the tendencies which I have been describing are the very breath of life. We feel stifled and mouldy in the atmosphere of traditional medicine; we see clearly that the current of scientific medicine has made us all what we are. But we do not always see so clearly that we must *direct* that current; ceaseless vigilance on the part of the old-fashioned faculties of common sense is nowhere more in need than in the guidance and regulation of the gigantic and beneficent tendencies now at work in medicine. We are told that it is not so much the gun as the man behind the gun that makes the success of the American and Japanese navies. So in the use of instruments of precision, the brain behind the instrument, the man behind the microscope, is the achieving force. Now, obvious as this seems when stated in cold print, it is not by any means so obvious as to be always acted upon. There is a tendency which one can hardly recognize until he has felt its poignant force in his own person to get carried away by one's own methods until the methods come to replace the active brain that ought to be using them. I see in others and feel in myself the danger that we may substitute the routine use of some excellent method, say of history-taking or of physical examination, for the free play of the active, acquiring mind, the

mind capable of being surprised and of seeing what it does not expect to see. Conventionality, literalism and formalism are dangers just as formidable in medicine as they are in religion, perhaps more formidable because we are not so much upon the lookout for them, and because they creep in in so insidious and stealthy a way.

From a slightly different point of view I may describe the tendency just referred to as one of the Protean shapes assumed by our aboriginal laziness. Paradoxical though it seems, I have no doubt that the scientific method is at times nothing more than a disguise assumed by our ineradicable laziness. I know no form of labor which the average man shuns more instinctively and more constantly than the labor of thinking or of fresh observation. But the doctor is human and capable of temptation all the more readily when the tempter assumes the subtle and baffling guise of the "scientific method." I know a doctor who never forgets his stethescope, his blood counter or his percussion hammer when he starts on his rounds in the morning, yet not infrequently he is so absent-minded as to leave at home one all-important instrument — his brain.

I suppose it is impossible for us to over-estimate the debt which we owe to Germany in the field of scientific medicine. For years we have been fed with the results of German industry and ingenuity until it has become habitual for us to stretch out our necks in that direction like fledglings in the nest. But we have also acquired the habit (and here is my point) of *bolting our food*, of gulping down in true American fashion the pabulum furnished us by our Teutonic brethren, forgetting that assimilation is a necessary prerequisite for nutrition. Now this habit of bolting down, unmodified, the nutritious gifts of our Teutonic brethren has given us several forms of scientific indigestion. One of these mental dyspepsias results in the idea that absolute accuracy should be sought for at all times and in all places. Now absolute accuracy is an ideal, not simply unobtainable but self-contradictory, as I think I can show you by a few examples. It is, of course, a commonplace that accuracy is always relative, — relative in the first place to the limitations of the instruments which we employ. "Accurate within the limits of error of the instrument employed" is the most that we can ever say of our observations, and that these instruments have limits of *error*, and very wide ones, is not always sufficiently realized. Neither is it realized that our accuracy is relative, not only to the limitations of the instrument employed, but also and chiefly to our *purpose*. What is accurate enough for one purpose is not accurate for a second and is too accurate for a third. I think it is safe to say that no physician in active practice can make physical examinations which are accurate even up to his own standard of possible accuracy. Such an examination would consume half a day, at least, and even then many points would be left uninvestigated because they seemed relatively unimportant. I think it is well for us to realize that this is always the case, and that in consequence it is always our duty to *direct our accuracy*, like a search light, where it can do most good. We must be inaccurate somewhere. The wise physician is he who knows well how to decide, where and when to be accurate, where and when to get along without accuracy.

Ludicrous examples confront us now and then, of misplaced accuracy, of misdirected exactness. A physician of my acquaintance was consulted not long ago by a lady for the relief of dyspepsia. The doctor made a careful estimation of the size, position, motility and secretive activity of her stomach, analysed the gastric juices by careful quantitative methods, examined the urine, and rendered a report containing quantitative measurements of the different solids as well as the ordinary chemical and microscopical tests, counted the red and white corpuscles, measured the hemoglobin, made a differential count of the leucocytes, and examined minutely the condition of the thoracic and abdominal organs. From the indications obtained by these examinations he prescribed for the patient with great care, but as it turned out, without success, for the patient's nausea and other gastric symptoms continued unrelieved. Some months later it was learned that she was pregnant.

Now what I want to bring out by this example is this, the fact that although the pregnancy could not have been discovered at the time the doctor saw his patient by any method of physical examination, yet it might have been discovered, or at any rate strongly suspected, had he directed as much energy and accuracy into the taking of his history as he put upon the physical examination. He used plenty of accuracy but he used it in the wrong place. He was too accurate, that is, uselessly accurate in some respects and correspondingly inaccurate in other and more important respects. Now the *relative importance* of the different aspects of a case is something not to be learned by becoming expert in any or all of the known methods of investigating disease. It is and must remain the work of common sense.

Let me enumerate briefly a few other examples of what I regard as misdirected accuracy, or perhaps I had better say disproportionate accuracy: 1. The estimation of the urinary solids by quantitative methods is usually a pure waste of time, not because it does not tell us anything, but what it tells us is altogether unimportant for the diagnosis, prognosis and treatment of disease. The information that it gives us is information that we cannot make any use of; inferences drawn from it may be misleading and actually harmful. Take, for example, the quantitative estimation of urea, a solid which I suppose we measure more frequently than any other of the urinary constituents, under the quite mistaken impression that we are securing thereby knowledge of the secretory power of the kidney. Now we all know, if we stop and think of it, that the output of urea represents not merely the functional power of the kidney but the resultant of a complicated group of forces. The urea output depends not merely on the power of the kidney but upon the

amount and kind of nutrition furnished the patient and upon the success of his organs in dealing effectively with what is given him. To interpret an urea estimate we need a knowledge of the patient's total nitrogenous metabolism. In most cases in which I have known measurements of urea to be recorded there has been no accurate knowledge of the food taken into the body and no possibility of allowing for the modifications produced by such symptoms as vomiting, diarrhea, sleeplessness, confinement in bed and psychological disturbances; yet in measuring urea we are measuring something dependent upon all of these influences as well as upon the functional power of the kidney. It would be hardly more absurd if we attempted to measure the efficiency of a street transit system by the number of patrons deposited every night at the theaters. It is true that this figure would depend in part upon the efficiency of the transportation system, but to neglect altogether such factors as the degree of attraction of the plays running at any given time at the different theaters, the clemency or inclemency of the weather, and the state of the public purse, would be no more absurd than the attempt to measure the functional power of the kidney by the estimation of the urea alone.

It is quite true that if we had a definite and accurate knowledge of the patient's metabolism we could learn a good deal from the output of urea, but in the vast majority of cases it is not possible for us to get any such knowledge of his metabolism, and without it our urea estimations appear to me a pure waste of time. It may be said that we may gain from them, at any rate, a rough estimate of the functional power of the kidney after making allowances for all the sources of error above alluded to. In a measure this is true but it is also true that we can gain the same information without taking the time to estimate the urea at all, simply by measuring the twenty-four-hour amount of urine and the specific gravity. From these two simple facts we can glean all the information that is afforded us by urea estimations except in the very rare cases where it is possible for us to spend the time necessary to study his total metabolism.

A similar mistake in the distribution of our efforts at accuracy occurs in many of the quantitative estimations of hydrochloric acid in gastric contents which give us the appearance of great scientific force without the fact. Again and again I have known physicians to estimate most carefully the percentages of free or combined hydrochloric acid and of the acid salts, while they had neglected to get even an approximate idea of the two most important facts about the stomach in disease: namely, its size and its motor power. The measurement of the gross total of residue in the fasting stomach and of the size of the organ after distention with air or water, give us facts of far greater value than the more accurate quantitative estimations of acid which occupy the foreground in most accounts of the stomach functions. With Conge red paper an estimate accurate enough for most clinical purposes can be obtained in a few minutes; and the time thus saved can be put into more accurate work in other directions.

In blood examinations far too much time is spent in making counts of red corpuscles. Not in more than one case in twenty-five in my own practice do I find it necessary to make such estimation. If the hemoglobin is normal and if there are no other obvious evidences of anemia in the general examination of the patient or in the examination of the stained film-specimen of blood, there is no need for consuming the time and energy necessary for a red count. The essential parts of blood examination in the vast majority of cases are the total count of white corpuscles and the examination of the stained film. This is the direction in which we want to put our accuracy.

I think it is unnecessary further to multiply examples. Anyone can think of similar cases as soon as his attention is turned to the matter.

I wish now to turn to quite a different aspect of my subject, yet one which is a branch of the same difficulty; I mean our failure to direct the current of the scientific tendencies of our time. It is a common, but I believe a very fallacious, belief among physicians, that "laboratory work" is a term as wide as "accurate work," and that clinical work must needs be comparatively inaccurate. Let us glance for a moment at the derivative meaning of these words. The laboratory is simply a place for work. The word means nothing more. Clinical means simply at the bedside. Now, my contention is that for most of us the best place for work is at the bedside. That is the place where the most essential information can be acquired, both for the benefit of science and for the benefit of the patient. There is no more pernicious fallacy extant than that which supposes that there is a necessary division between the "laboratory man" and the "clinical man" or between the "laboratory work" and "clinical work." This is a distinction which Dr. Deaver of Philadelphia has done much to harden. He is never tired of insisting that the point of view of the clinician in diagnosis is superior to that of the laboratory worker. But why in Heaven's name should we have to choose either one? Why should not each one of us make himself master of all the facts necessary for the diagnosis of his case, both the facts obtained by what we ordinarily call the clinical examination of the patient and those obtained with the help of the microscope and of chemical reagents? If one had to choose (for example, in the diagnosis of appendicitis) between knowing only the facts obtained by microscopical and chemical analysis, and knowing only the facts obtainable at the bedside without the help of these agencies, why, I suppose any of us would choose the bedside as the better standpoint for observation. But my point is that we never ought to be forced into making any such choice. Not either one without the other, but both. That is what we want. No one is so foolish as to depend wholly upon a single method of examination in diagnosis, whether that

method be either a measuring of temperature, which we ordinarily call a "clinical fact," or the counting of leucocytes which we ordinarily call a "laboratory fact." All such facts are of value only when considered in connection with all other available evidence. They are like single letters of the alphabet which in their isolation are almost meaningless, yet when grouped into words may be most significant. A diagnosis in most cases should rest upon a group of data which together spell out a word.

The harm done by the attempt to separate our examination of the patient's functions into two sharply differentiated portions and to assign one portion to the individual known as the laboratory man and the other portion to some one called a "clinician," — the harm, I say, done by this attempt consists in part in a loss of essential facts in the transfer from one man to another. For such data are not readily transferable like coin without loss of value. Few can interpret the results of blood examination, or urinary examination, unless they are constantly making such examinations themselves. Indeed the attempt so to interpret them is almost as hopeless as the attempt to convey satisfactorily to another what one feels in palpation of the abdomen. Laboratory facts are *personal* facts as much as the results of palpation, and they are almost as difficult to convey to a second person. Moreover, our interpretation of the crude data obtained by our senses is apt to be a very faulty one if we attempt, as a so-called laboratory man often has to do, to make this interpretation wholly uninfluenced by the clinical aspects of the case. Those best trained in microscopical and chemical analysis are coming more and more to feel unwilling to hand over to another man any hard and fast conclusions based upon the isolated facts in his position. More and more we are finding that the men who examine scrapings or fragments of a tumor want to see the case in the wards and get possession of all the facts ascertainable, just as the clinician is more and more unwilling to accept a report from the laboratory without seeing the specimens himself.

Dr. Welch has pointed out in a most timely way, in a recent discussion in the Johns Hopkins Hospital Bulletin, how unwise it is to attempt to construct clinical histories from post-mortem evidence. But the evidence obtainable by what we still insist calling the "laboratory man" is usually as one-sided as the post-mortem evidence just alluded to. It needs to be filled out and corrected by facts obtainable only at the bedside.

Summing up what I have said, it seems to me, (1) that we need to direct the great current of scientific medicine, first by observing a due proportion in the amount of time and the degree of accuracy assigned to the different portions of our examination of a patient, and (2) that we want to rub out as fast and as far as possible the distinction between laboratory diagnosis and clinical diagnosis.

Original Articles.

METATARSO-TARSAL VALGUS OR HUMPED FOOT AND ITS RELATION TO BOOTS.*

BY E. H. BRADFORD, M.D., BOSTON.

It is claimed with probable truth that American shoes are the best in the world. American feet, however, are being deformed to a lamentable degree by foot wear. Foot deformities may be said to be prevalent because of the excellence and cheapness of manufactured boots. The intelligence and energy which have been concentrated in the manufacture of shoes have attracted a large amount of capital in the development of shoe factories. The market is a large one and the interests of capital demand large sales to compensate for financial outlay. The result is that great energy is devoted not only to the excellence of

FIG. 1. — Showing shoe constriction of front of foot, with normal foot in shoe before and after removal of upper.

the output but to the development of a selling style. But as there is a profound ignorance as to the normal shape and functions of the foot, sales of boots depend to a great extent on fashion, and fashion has always prompted the wearing of foot wear which cramps the foot. Deformities of the foot from shoes are possible from the fact that the human foot is capable of a great deal of compression if compression is exerted without causing much pain. Although sensitive in cer-

* Read at a meeting of the Boston Society for Medical Improvement, April 11, 1904.

tain parts, in others the foot is tolerant of a great deal of alteration by pressure. Shoes, therefore, which avoid pressing in certain directions may exert a great deal of pressure in the others. It is also true that the foot as an implement of locomotion is capable of a variety of functions, and portions of it are used in standing which are less used in active gait; that portions of the foot used in running or active walking are not needed in the ordinary heel and toe gait over even surfaces and can be compressed without serious inconvenience. The foot of the ploughboy needs a different play of muscles from those used in the ball room. It is for this reason that boot compression is possible among classes who live in cities without the need of physical activity, that would not be possible among those requiring agility in their daily life. Slight deformity can take place with slight discomfort, provided individuals do not lead active lives. So true is this that foot deformity will be found to be extremely common.

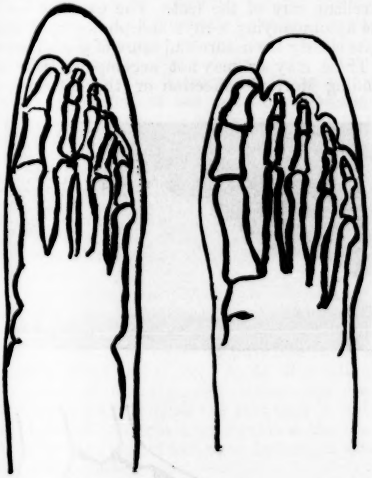


FIG. 2.—Tracing of skiagram of foot in shoe before and after removal of upper.

It is easy to exaggerate the importance of shoe deformities. The fact that they are to be found to a greater or less degree in all whose occupations do not prevent cramping of the foot by foot wear is sufficient evidence that severe injury rarely follows. But it is easier to minimize the resulting evils. If people adapt themselves to their limitations there is no suffering. Presumably the foot-bound ladies in China find a fair share of enjoyment in life, but certainly they are handicapped in their pursuit of happiness. This is to a degree true of all whose feet are weakened or distorted. The unnecessary cramping of the feet of children which is so prevalent must, therefore, be looked upon as little less than criminal. How common this is can be seen whenever new shoes are stretched, pushed or pounded on young children's feet. No pain and but little discomfort results owing to the flexibility of the child's foot, but the resulting enfeeblement of the foot, though not seen by the shoe dealer or even the parent, is developed in the later lessened activity of the man. The old age of a multitude of men and women is crippled by the neglect in early childhood of the precaution to provide shoes which give free activity to the foot and leg muscles. That the marching activity of the average citizen has been hampered by the lack of strength of their feet is illustrated by a well-known historical fact. It may be remembered that the untrained militia of Massachusetts marched from the center of the state to Boston, fully equipped, at the rate of thirty miles a day during the alarm of the attack by the French fleet in the French and English War. The marching record of the embattled farmers before Concord and Bunker Hill is not known, but it is safe to suppose that it was decidedly above what could be shown by the present militia companies, rarely equal to a ten-mile march. This opinion will be confirmed if a Labor Day parade is watched with the marked evidence of the foot enfeeblement of our mechanics and working classes. Living as we do in times of peace and when walking is not needed for activity, the deprivation in usefulness from enfeebled feet is reduced to the lowest possible limit. But the comfort of old age is dependent more on the daily walk than on the bicycle or automobile, and anything which impairs the ability for that enjoyment may be regarded as an evil, none the less that it is avoidable.

Shoe deformities result from the pressure of a boot crowded backward upon the standing or walking foot. The boot when the foot is used must find resistance somewhere and it exerts pressure according to its shape. The boot, stretched by constant use, loses its original shape and its least elastic parts exert the chief pressure. The most common deformities are caused by crowding the toes together as the shoe is always made narrower than the natural spread of the foot. This crowding results most injuriously upon the great toe which is pushed toward the middle of the foot and frequently partially dislocated. The boot is then pressed backward upon the foot, and meeting the resistance of the head of the first metatarsal develops by irritating irregular bony enlargements as well as thickening and irritation of the skin. This does not necessarily result from a short or a tight boot. It will result also from a loose boot which is narrower than the width of the toes. This deformity is naturally less liable to occur in heel walkers or leisurely people who use the front of the foot but little, but in persons of activity it constitutes the most crippling foot deformity. The injurious effect of the shoe is increased by the custom of a stiffened toe cap which prevents tbe stretching of the leather and acts as a clamp holding the toes together when they would naturally spread in walking. The less resistant portion of the boot stretches

with use, "falls away from the foot," to use the boot fitters' term, and the foot bound by the toe cap at the toes becomes distorted. The muscles governing the movements of the toes are weakened and the weight-bearing function of the front of the foot is impaired, a greater part of the strain falling upon the middle portion of the foot. As this weight from anatomical reasons does not fall directly over the middle line of the standing foot but slightly to the inner side, there is a tendency

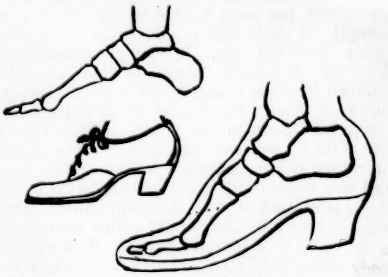


FIG. 3.—*a*. Drawing of normal positions of bones of foot. *b*. Fashionable shoe. *c*. Tracing of skiagram of foot in shoe, indicating cramping and downward pressure on the first metatarsal.

for the ankle to drop to the inside. This tendency is checked in barefooted people by the spreading inward of the great toe and its metatarsal which acts as a prop. This pressure to the inside stretches the inner arch of the boot which yields in spite of all efforts to prevent this by the use of stiffening. The binding together of the toes, the weakening of the foot muscles and the impairment of the natural functions of the foot result in weak foot, or splay foot. This is increased by the exaggerated toeing out attitude which is assumed not only as a custom but also as a natural result from the crowding position of the toes. The individual not having the natural spread of the foot for his base of support enlarges this base by standing in a toeing-out attitude, and in the propulsion of the body in walking uses the inner side of the boot instead of the claw action of the toes which is employed by the strong footed.

It is clear that if deformities of the feet are developed by shoes there will be a variation of these deformities according to the fashion of shoes. This corresponds to what is found if the evidence obtained from antique sculpture can be trusted. Even sandal wearing people develop slight deformities of the toes, but where more elaborate shoe covering is worn the deformities vary. This is seen in the difference between the shape of the feet as is shown in Egyptian art, in Greek statues and in the statues and pictures of the Renaissance. If, again, these are compared with the feet seen in modern French sculpture a variation of deformities will also be found. Of late years, as the fashions of shoes have changed, a variety of deformities is also seen. The chief deformity seen ten or fifteen years ago were deformities of the toes and weak and flat foot. The extreme outtoe is less common now than formerly among persons buying fashionable shoes, owing to the use of less pointed shoes, straighter on the inner edge than formerly worn. Of late years, however, owing to the change in the shape of the lasts, boots are worn with the long and narrow shank and a high instep and flat waist, and different symptoms are often complained of; slight pains in the front of the foot, with tenderness and aching after walking or standing. This pain is localized more particularly on the inner and under side of the first metatarsal, but may involve the other metatarsals. On removing the shoe and stocking a certain amount of redness is frequently seen over the head of the first metatarsal, or a little behind it. The symptoms are relieved by the removal of the shoe. These symptoms are seen more frequently in ladies and less frequently in men, although in heavy men obliged to stand or walk a great deal and wearing unsuitable shoes the symptoms are severe. They are often seen in strong and athletic people who otherwise take excellent care of the feet. The examination of the accompanying x-rays and photographs illustrate clearly the nature and cause of this affection.

These may or may not accompany those attending Morton's affection or the flattening of

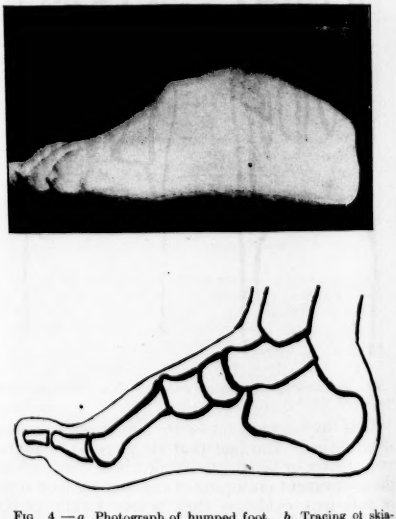


FIG. 4.—*a*. Photograph of humped foot. *b*. Tracing of skiagram of humped foot with irritation exostosis of the metatarso-cuneiform articulation.

the transverse arch which results from pressing down the heads of the smaller metatarsal, causing callosities in the middle of the front of the foot.

The cause of this affection of the foot would appear to be the shape of the boot resulting from the attempt on the part of the manufacturer to prevent the ugly spreading of shoes when worn. The last is shaped low in front and the upper is cut snugly and stitched with an inelastic oblique

seam which exerts close fitting pressure on the whole of the front of the foot. The result is that the shoe keeps its shape well but the movement of the front of the foot, especially the first metatarsal, is severely hampered. The narrow toe cap limits the play of the toes; and the long and narrow shank, the high curve cut out of the inner side of the last, and the oblique seam prevent any inward play of the first metatarsal, the front of the foot being held as if by a snugly encircling band. The result is that the first metatarsal and the ball of the great toe being hampered in its function, more weight comes upon the second, third and fourth metatarsals than is desirable. Callosities, faulty strains and altered nerve pressure or anterior metatarsalgia result. Another condition results which can be described as metatarso-tarsal valgus. It is characterized by a depression of the first metatarsal with an inward movement of the foot at the metatarso cuneiform articulation. In precise term the deformity would be the awkward term metatarso tarso cavo valgus, affecting chiefly the first metatarsal. It may popularly be called "humped foot." As boots are cut so that there is not only no spread at the toes but also none at the metatarsals, the ligamentous strain in locomotion is not felt at the metatarso phalangeal articulation, nor can the whole foot swing to the inside at the midtarsal articulation (the cross joint of the foot), making a splay foot. The strain comes at the metatarso tarsal articulation. If a heel is worn the boot gives a slope to the foot and causes a backward pressure on the sliding foot causing a cavus, analogous to that seen in the foot of a Chinese lady. Irritation may follow, and exostoses result.

The remedy of the present prevalence of shoe deformities can be readily prescribed, but it is not easily applied, there being a human weakness which prompts the buyer to purchase small and injurious boots and shoes. As an illustration of the extent of the prejudice against the use of loose shoes may be cited the fact that it will be found almost impossible to introduce the use of moccasins, the best of foot wear devised, in female gymnastic classes.

The remedy must come by educating the public demand as has been accomplished in an improvement in the shape of corsets and the more general use of less harmful waists. This is the result largely of the increasing athletic activity of women and partly by a better knowledge of the human figure. When working people realize the extent to which their feet are injured by shoes, then will be an increasing demand for less harmful foot wear. A certain amount has already been gained. There is a great improvement in men's walking boots and in men's boots in general. A number of infants' shoes are not injurious, and sandals and moccasins are more used than formerly. The athletic girl is not unwilling to wear boys' boots.

It should be the custom for all people who pay attention to their foot wear to furnish themselves with working and with dress boots, and to relieve the foot from all pressure when at leisure, wearing moccasins or Turkish slippers. The working shoes of women should be like those of men, giving freer play to the foot. Children should wear moccasins, sandals and loose, light boots and shoes.

THE PAIN OF OSTEO-ARTHRITIS OF THE SPINE: ITS BEARING ON THE DIAGNOSIS OF URINARY DISEASE.*

BY ARTHUR L. CHUTE, M.D., BOSTON, MASS.

ABOUT three years ago my attention was first called to the bearing which osteo-arthritis of the spine may have in the diagnosis of urinary disease. In my attempts to find a definite cause for obscure pain, which was supposed to depend upon hypochondriasis or neurasthenia, I examined with great care all urinary patients who complained of pain for which there was no evident cause. In some of these patients the only abnormality that I could find was a stiff lumbar spine, treatment of which gave relief to the pain in a certain number of cases. A continued study of this subject has convinced me that this pain of osteo-arthritis of the spine is an element which must be taken into consideration in the diagnosis of a certain number of cases which present themselves to men interested in urinary disease. I present my observations in the hope that this subject may receive a more extended investigation by the members of this association.

The whole subject of osteo-arthritis is relatively new; the possibility of its giving rise to pain which may be confused with that of urinary disease has, so far as I know, never been recognized. In using the term "osteo-arthritis" of the spine I do not pretend to distinguish between osteo-arthritis, rheumatoid-arthritis, and arthritis deformans, if indeed these are separate diseases, nor do I mean to express any preference for one name over another. I apply the term "osteo-arthritis" of the spine to those chronic, non-tuberculous processes which are characterized clinically by more or less stiff or immobile spines, usually presenting considerable spasm of the back muscles and often accompanied by local or referred pain. Cases presenting similar clinical pictures have shown anatomically inflammation of the vertebral articulations, while very advanced or long-standing cases have shown ankylosis of the vertebral articulations, as well as lipping or fusion of the vertebral bodies; this last due in part to a bony infiltration of the anterior common ligament.

While osteo-arthritis may attack any part of the spine, our interest is limited to that involving the lumbar and sacral regions; regions which are often the seat of pain due to disease of the genito-urinary organs and which are also the points of origin of the lumbar and sacral plexuses.

The osteo-arthritis cases I have observed have presented two sorts of pain, either of which may, under certain conditions, cause confusion in uri-

*Read at the Third Annual Meeting of the American Urological Association, Atlantic City, June 8, 1904.

nary diagnosis. The first type is that in which the pain is local, referred to the spine or vaguely to the back in the lumbar or sacral regions. This pain is for the most part a dull ache and is to be attributed to the sensitive vertebral articulations. It may possibly sometimes depend upon the bony infiltration of the anterior common ligament.

The second sort of pain is that referred to the distribution of certain of the nerves arising from the lumbar or sacral plexuses. Observers are, I think, not agreed as to its cause. It seems probable that in some instances this pain is due to the presence of an inflammatory exudate about the spinal articular processes, which exudate exerts pressure on the nerve roots as they pass out between the laminæ. This explanation suffices for the pain in the nerves arising from the lumbar plexus. It is not, however, a perfectly satisfactory explanation for the pain in the nerves which arises from the sacral plexus, and the sciatic and pudic arising from this plexus are two of the nerves very frequently involved. It is possible that the pain, even in the nerves which arise from the sacral plexus, may have its origin in the lumbar region and be referred along the fibres of the lumbo-sacral cord which unites the lumbar and sacral plexuses. The fact that motion of the lumbar spine sometimes has an influence on the local as well as the referred sacral pain would point to the probability of this.

As stated above, the local pain is referred to the back in the region of the lumbar vertebræ or the sacrum, and may, under some conditions, be confounded with the pain of movable kidney, prostatitis, or vesiculitis.

The referred pain occurs, for the most part, in the distribution of the ilio-hypogastric, ilio-inguinal, genito-crural, or pudic nerves, that is, in the iliac-fossa, groin, suprapubic region, perineum, scrotum or penis. When the pain is of this referred type it is usual to see with the pain in the genitals, or genital region, a certain amount of pain in the thighs, usually referred to the distribution of the branches which arise from the lumbar plexus, sometimes, however, to the distribution of those arising from the sacral. Due to the fact that the osteo-arthritic process is usually more advanced on one side of the spine than on the other, it is usual to have the referred pain either confined to one side, or at least more marked on one side than on the other. This pain is seldom of the girdle type, which is so frequently seen in the tuberculous disease of the spine. This referred pain of osteo-arthritis may be limited to a quite sharply defined area and persist for a considerable period. I do not remember ever seeing any tenderness in the area in which the pain was located.

As regards the frequency of the different sorts of pain, the local pain in the lumbar region is the commonest. Next in frequency comes the pain referred along the nerves arising from the lumbar plexus and felt in the groins, hypogastrium, etc. Pain in the sacrum and referred through the branches of the pudic to the penis and perineum is the least common.

I will take no more time in the consideration of osteo-arthritis of the spine in general, but will give abstracts from the clinical histories of a few cases which illustrate the bearing that its pain may have on the diagnosis of urinary disease. This list does not include all the cases of this sort that I have seen, but I think it does illustrate the general types.

CASE I. A man of fifty, seen in the fall of 1903. He had always led an active, hygienic life, and never had any venereal or urinary trouble. More than two years before he began to have pain in the lumbar and sacral regions. This pain also ran down the backs of his thighs. There were various opinions as to the nature of his trouble and various sorts of treatment were recommended and carried out, only one of which is of interest to us. For a period of nearly two years he was given massage of his vesicles and prostate by a very competent genito-urinary surgeon. This treatment was given partly on the score of diminished sexual vigor, but principally in the belief that the pain from which he suffered was of vesicle origin. There was no relief on either score. When seen by me late in 1903 his pain was such as to partially incapacitate him for business. He presented a straight, rigid spine with practically no motion in either flexion or lateral bending. There was a good deal of spasm of the back muscles, and the patient to reach anything from the floor let himself down as a child with spinal caries does. This man was referred to an orthopedist who applied a leather jacket. The patient told me recently that he had had no pain since his jacket was applied.

In this case the local pain in the lumbar and sacral regions, as well as the referred pain in the thighs and the lessened sexual vigor, had been wrongly attributed to disease of the vesicles. The pain was due to a severe grade of osteo-arthritis of the spine; the lessened sexual vigor to age or ill health, or a combination of both. Immobilization of the spine gave immediate relief from the pain.

CASE II. A woman of forty-three who had previously been under my care because of an irritable bladder caused by a small fibroid in the anterior uterine wall. During the past winter, while in the South, she suffered from a good deal of pain in the back and right lumbar region. This pain was dull and made worse by standing or walking. There was no history of Dietl's crises. On her return abdominal examination showed a freely movable kidney right which was neither tender nor enlarged. Examination of her pelvic organs gave nothing to account for her pain. Her back showed a stiff lumbar spine, with deficient motion in flexion and lateral bending, accompanied by considerable spasm of the back muscles. Her back was strapped with strips of adhesive plaster in such a way as to give it partial immobilization, and she was given sodium phosphate. The strapping, which was renewed once or twice, was worn for some weeks. There was quite prompt relief and later complete disappearance of her pain, of which there has been no return up to the present time.

This patient had a very slight osteo-arthritis with local pain, which disappeared under partial immobilization of her spine. The movable kidney had nothing to do with this pain. While this is not a marked instance, I think it illustrates a most important class, the great frequency with which a more or less movable kidney is found in the routine examination of patients, especially of women, and the unsatisfactory symptomatic cures in many operated cases, suggest strongly the probability that the pain ascribed to movable kidneys is often due to other causes. I believe the com-

bination presented by this case offers a probable explanation for certain of the cases in which the symptomatic cure is unsatisfactory. It would not come into consideration in the cases that have definite renal crises.

CASE III. A man forty-eight years old, who had gonorrhea in February, 1902, which left him with a chronic infection of his prostate and vesicles. Six months after his infection, and while he still had a certain amount of chronic prostatitis, he began to have pain in his glans penis and groins, also some in his testes. The urethra took a full-sized sound. His urine, which showed no abnormality on chemical examination, was clear but for one or two mucous shreds. Examination of his bladder with a stone searcher and cystoscope was negative. It was supposed that his pain was dependent on the chronic prostatitis and he was treated for this. As his prostate cleared up there was no improvement in his pain, which was increased if anything. After his prostatitis had been treated for some time without relief to his pain, his back was examined and showed a stiff lumbar spine with deficient lateral bending. He was referred for orthopedic treatment and wore a jacket for a short time with marked relief. Then he refused to wear his jacket and his pain returned. When last seen, nearly a year after removal of his jacket he showed practically no abnormality of his urinary organs but he still had his osteo-arthritis and complained of pain as before, though it was less than formerly. In this patient the pain was for some time supposed to depend upon a chronic prostatitis.

CASE IV. A man of thirty-five who had contracted gonorrhea eight months before, and who first came under treatment for a chronic urethritis. He had a narrowing of his bulbous urethra (to 23 F.) which together with his urethral discharge cleared up under the use of sounds and irrigations. Some two months later he reappeared with pain low down in his spine and also in his perineum and urethra. His urine contained no shreds; examination showed no lesion of his urinary or sexual organs. He did, however, show a spine which was abnormally stiff in the lumbar region, with some spasm of the spinal muscles. He was referred for orthopedic treatment, which in this case was strapping of his lumbar region with strips of adhesive plaster. Under this treatment, which was combined with doses of sodium phosphate, his pain disappeared, He was heard from within a short time, about six months after the beginning of treatment. When his back is strapped and his spine is partially immobilized, he does not have pain. When the strapping loosens and does not give support, there is return of the pain, though as the process itself progresses toward recovery the pain is less. This case illustrates pain of osteo-arthritic origin which was first supposed to be neurasthenic. Cases of this type are common.

CASE V. is of interest in connection with these other cases. It is not, however, a case of osteo-arthritis, but one in which referred pain was due to a gonorrheal arthritis of the spine. The patient was a man twenty-one years old, whose gonorrheal infection had taken place two and a half years before. In the third week of the attack he had an infection of one knee which kept him in bed three or four weeks. Soon after he got up he was taken with severe pain in his back which confined him to bed for six months, during which time he lost forty-five pounds. When seen he had been suffering for seven months from occasional sharp stabbing pains in his perineum and from dull pain referred to the lumbar region. He had been treated with sounds and irrigations but without relief. His urine was clear with a single filmy shred; his urethra took a 28 F. sound easily. His spine, from high in the dorsal region, was very stiff, there being only a very little motion in either flexion or lateral bending. In this case the ribs were involved and his breathing was almost wholly abdominal. He had worn a leather jacket for nearly two years, but this he had so outgrown that it gave him little support. He was advised to wear a support which would hold his spine better. This he did, making a brace himself and getting an orthopedist to help him fit it. He was seen six months later, when he reported that the improved fixation had done away with his perineal pain entirely and had helped the pain in his back. The apparatus he was wearing did not, however, give his spine the immobilization it needed. I think it probable that a better fitting apparatus might have still further decreased his pain.

I have very recently seen another case, suggestive of trouble similar to that in the above reported cases. The patient was a man of sixty, who showed no lesion of his genito-urinary organs, but who had had pain referred to his scrotum for two years. He had been treated at first by regular practitioners, latterly by irregulars. The diagnosis had usually been varicocele, though he presented no enlarged veins, even on standing. Treatment had had no influence on his pain. This man presented a perfectly rigid lumbar spine. In the orthopedic clinic, to which he was referred, they considered his pain as probably of osteo-arthritic origin. He wore a plaster jacket for a few days but not long enough to demonstrate whether or not it would help his pain. I do not consider that in this case the pain is demonstrated as being of osteo-arthritic origin; it is, however, suggestive.

The element of osteo-arthritis need be considered in its relation to the diagnosis of urinary disease only in patients who have pain. This pain is usually not sharp but a dull ache. It is for the most part worse on standing, walking, or when fatigued.

The patients who present themselves with pain of this sort have, as a rule, suffered from previous attacks of urethritis or other urinary disease. They present themselves believing that the pain must in some way be due to their former trouble. When on examination a stricture, a prostatitis or some pathological condition is found, the pain is supposed to depend wholly on this. When no definite pathological condition can be demonstrated the pain is likely to be considered neuralgic or neurasthenic.

Because of the location of the pain in the renal region or general region of the genitals, persons who have never had any urinary trouble occasionally present themselves, and in such persons the pain is usually considered purely neurasthenic.

As regards the diagnosis, where the pain is purely that due to osteo-arthritis there should be no great difficulty in recognizing it, whether it is of the local or of the referred type. The lack of any objective signs of urinary disease, together with dull pain which is persistent and attended with a stiff spine, should suffice for its recognition.

The stiffness of the spine may vary within wide limits. It may be of the absolutely rigid type with obliteration of the lumbar curve, in which case the patient to get anything from the floor flexes his knees and hips and lets himself

down after the manner of a child with spinal caries, or the stiffness may be so slight as to be indicated by only a slight deficiency in forward or lateral bending. In persons following laborious occupations it is difficult to estimate the normal from the pathological stiffness; this will frequently have to be done by the orthopedist accustomed to deal with this problem. In marked cases the patient sometimes complains that he is not able to turn in bed without pain, or to get out of bed without first turning on his face and backing off.

A point which helps to distinguish this pain from that of sexual neurasthenia is the fact that the patients do not, as a rule, complain of abnormal sensory phenomena, such as heat or coldness, or tickling of the parts, or of sexual symptoms, such as irregularities in erections and emissions. When the pain is purely of this type I have seen no disturbance of micturition. The complaint is solely that of dull pain, which, because of its location, is supposed to be of urinary origin.

It is in the cases where this pain is associated with some slight pathological condition or slight abnormality of the genital or urinary organs that the probability of overlooking it is greatest, and where, when it is recognized, there is the greatest difficulty in determining the relative importance of the various elements which enter into the case. In some instances the therapeutic test of immobilizing the lumbar spine may be necessary in order to arrive at a definite determination of the importance of the different factors.

Treatment: In the mildest cases improved hygiene and phosphate of soda may be all that is required. In the great majority of cases, however, something is required which will give some support to the spine or even partially or wholly immobilize it. The treatment of any but the mildest cases falls more into the domain of the orthopedist than that of the genito-urinary surgeon. In some of the cases I have seen, strapping the back with strips of adhesive plaster, put on in such a way as to support and partially immobilize it, has been sufficient. In some a wide heavy canvas belt has relieved the pain, while in others a plaster or leather jacket has been required. The duration of treatment may vary from a few weeks in the milder cases, to many months in the severer ones.

In conclusion I would point out the importance of bearing in mind the possible explanation that osteo-arthritis may afford for some instances of pain, which at first sight would seem to be of urinary origin, but for which one finds no adequate cause. Also the explanation this condition may offer in other cases for the persistence of pain after the disappearance of the urinary lesion on which the pain was supposed to depend. I would call particular attention to the importance of recognizing such conditions as existed in Case II, in which there was present with lumbar pain due to osteo-arthritis, a movable right kidney. I think it possible that the combination of a more than normally movable kidney and an osteo-arthritis may be much more common than has been recognized, and that this combination may account for some of the disappointing results following nephrorrhaphy. Certainly the possibility of this combination should always be borne in mind in considering the question of operation in cases in which there is no history of Dietl's crises.

Clinical Department.

REPORT OF A CASE OF PRIMARY CARCINOMA OF THE APPENDIX.

BY DANIEL FISKE JONES, M.D., BOSTON,
Surgeon to Out-Patients, Massachusetts General Hospital,
AND CHANNING C. SIMMONS, M.D., BOSTON.

Two excellent articles upon this subject appearing in the Annals of Surgery for 1903, pages 549 and 891, the first by A. W. Elting and the second by Alexis V. Moscheowitz, give references, pathological reports, etc., with all the reported cases up to the latter part of 1903. The reader is therefore referred to these articles for further details.

The patient whose case is to be reported here was a trained nurse, twenty-six years old. Her family history is excellent. She has always been well, but is rather a nervous person. She had four attacks of what she called colic, the first one twelve years ago, and the last one in January, 1904. These attacks of colic, in which the pain was all over the abdomen, but worse in the right side, only lasted for six or twelve hours, when she would be as well as ever, except after the last one when her side remained sore for a day or two.

On Feb. 15, 1904, she had an attack of headache, backache and vomiting, with pain in the abdomen which radiated from the right side, but which was not so severe as during the previous attacks. Her temperature was 102°. On the fourth day of this attack she was much better but her right side remained lame and sore for a week. Two weeks later the soreness came on again and remained in the right side until she was operated upon April 9, 1904. Physical examination showed a well developed and nourished woman but rather anemic. There was some tenderness in the right side but no definite mass could be felt.

At the operation the appendix was found to be two and one half inches long and dilated to about the size of the base of the little finger. It was not adherent, but the peritoneum was edematous and soft in appearance as if covered with villosities. The appendix looked as though it was distended with fluid. Just at the base of the appendix was a thickened area about the size of a pea, which seemed to be blocking the lumen. To tie off the appendix it was necessary to tie at the thickened area, a small portion of which was cut off with the appendix. On opening the appendix it was found to be filled with a cloudy mucous, its walls were thickened and changed by a chronic inflammatory process. The thickening at the base looked like cicatricial tissue and was limited to the appendix itself. The stump of the appendix was buried with silk sutures, after which the abdominal wound was closed.

When Dr. Simmons report was received, preparation was made for a second operation, which was done two weeks after the primary one. An oval section of the cecum two and one-half inches in length by one and

one-half inches in width with the stump of the appendix as a center, was excised. This opening was closed by two rows of Lembert sutures of silk. A chain of small glands beneath the cecum was then excised, and the abdominal wound closed.

The patient made an uninterrupted recovery, and at the present time is in excellent condition.

The pathological report by Dr. Channing C. Simmons follows.

PATHOLOGICAL EXAMINATION.

Appendix. — The appendix was 6 cm. long and of uniform diameter but firm and somewhat thickened. The peritoneal surface was roughened, slightly injected, and adherent to the mesentery, which extended to the tip of the organ, by fine fibrous adhesions. On section the walls were somewhat thickened, more so at the tip than at the base. For 1 cm. at the base the coats were not as clearly marked as in other parts of the organ and the tissues were firm and of a whitish color. No tumor or anatomical tubercle could be distinguished. In gross the mucosa was without ulceration and appeared normal.

Microscopic examination. — The specimen was hardened in formalin, and the sections stained with hemotoxylon and eosin, and by Van Gieson's method.

Examination of a section from the base showed the walls somewhat thickened. The longitudinal muscular layer appeared nearly normal, the main thickening occurring in the circular layer, which was partly replaced by loose fibrous tissue, and in the submucosa which showed extensive round cell infiltration. The mucosa was in some places normal while in others it was partly necrotic and infiltrated with leucocytes. A lymph follicle in some of the sections extended one half way around the lumen. In the submucosa and extending through both muscular layers were several small solid masses of atypical epithelial cells. The clumps of cells were, as a rule, far apart but in one section several nests in the submucosa were in close apposition. The areas were larger and more numerous in the submucosa than in the muscular coats, and in several places in the latter the cells were arranged in columns as if occupying the position of a lymph space. The cells were small, closely packed together, with round or somewhat oval nuclei and deeply staining protoplasm which, however, did not have sharply marked outlines. A few mitotic figures could be found on careful search. There was in no place any tendency to gland formation. The growth had no definite borders and was not associated with the mucosa, in no place reaching the lumen of the gut but rather occupying the deeper layer of the submucosa.

Examination of sections from other portions of the appendix showed some small round cell infiltration of the submucosa and considerable lymph adenoid tissue. There was no evidence of any new growth and the sections were not remarkable.

Cecum. — The specimen consisted of a disc-shaped piece of tissue from the head of the cecum, 6 cm. in diameter. Eccentrically placed on the peritoneal surface was a line of silk sutures which, on being separated, showed the stump of the appendix. Around this the peritoneum was slightly injected and showed a fine line of subperitoneal hemorrhage 2 cm. long running towards the edge of the specimen and probably representing the attachment of the mesentery. On section through the base of the appendix the walls were slightly thickened and inflamed but there was no evidence of any new growth. Elsewhere the gut appeared normal.

Microscopical examination of a section through the base of the appendix and the cecum showed the walls somewhat edematous, infiltrated with small round cells and containing many dilated vessels. The tie used in securing the base of the appendix could easily be distinguished and was infiltrated with granulation tissue in which were large numbers of foreign body giant cells. There was in no section any evidence of a new growth.

Sections from other portions of the cecum showed nothing remarkable.

Microscopic examination of three lymph nodes removed from the subcecal region, showed hyperplastic lymphadenoid tissue.

Diagnosis. — Carcinoma of the appendix of rather a scirrhus type. Chronic appendicitis.

Medical Progress.

REPORT ON MENTAL DISEASES.

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

HALLUCINATIONS.

ACCORDING to White,[1] the common feature of the definitions of hallucinations given by Griesinger, Tuke, Von Krafft-Ebing and Kellogg is the essential part of Esquirol's distinction, *viz.*: that the hallucination is centrally originated, that it is an idea of memory image, intensified and projected outward, *i. e.*, become a sensation. This theory he considers is founded upon a complete misconception of the mental state in hallucination, and of the nature of the sensation. It is absolutely impossible for a centrally aroused idea to be mistaken for a sensation. The most characteristic feature of a sensory impression, in fact the very feature which stamps it as such, is the feeling of objectivity, of externality that goes with it, and no centrally aroused idea can acquire in any way this feeling. In other words, an idea of a sound cannot by any possible increase in intensity actually become a sound. To account for this feeling of externality and projection outward of the hallucination, and also for certain cases where the sense organ itself appears to be involved, an addition to the above-described theory has been evolved, whereby it is assumed that the sensory channel becomes the seat of a centrifugal nerve current, originating in the higher ideational cortical centers, and following thence to the sensorium, and from there on downward in many cases to the sense organ, where the conditions present indicated a local disturbance therein.

It is a sufficient criticism of this theory of centrifugal conduction to say that it is founded upon a purely gratuitous assumption. No adequate proof has ever been offered that a sensory nerve can conduct in other than a centripetal direction.

No one thus far has seemed to consider the sense organ itself worthy of much attention. It is true that here and there an investigator has called attention to the condition of the sense organ in hallucinations, particularly Schlager, before mentioned, and Hoppe. There does not, however, seem to be any unanimity of opinion as to the origin of hallucinations among investi-

[1] Jour. Nerv. and Ment. Dis., Nov., 1904, vol. xxxi, no. 2.

gators, but, on the other hand, a generally prevailing tendency to accept Esquirol's distinction.

With a view of determining just what relation, if any, exists between the state of the end organs and the condition of hallucination the writer has made a systematic study of these organs in hallucinated patients. He favors Sidis' theory which is based upon the assumption that perceptions of any sort, whether of external objects or hallucinations, must have a peripheral, a sensory origin to account for the feeling of externality, objectively, that has been alluded to.

What happens in normal perception is that the sensorium is excited primarily by the particular form of sensory stimulus, brought in by the acting sense organ, and, secondarily, by the irradiation of this stimulus into adjacent sensory fields. The percept receives its specific sensory quality — visual, auditory — from the nature of the primary focal sensory stimulus, and is made complete by the added secondary elements. Now, all that we have to conceive to explain the phenomena of false perception is the shunting of the main current of the sensory stimulus into the adjacent sensory fields, thereby arousing the secondary sensory elements to undue intensity, so that they occupy the sensorium on an equal footing, or, perhaps, to the exclusion of the primary elements.

He gives ten cases which illustrate how the phenomena as ordinarily experienced can graduate into a true hallucination. In all of them, lesions or other irritative conditions of an end organ, *viz.:* enlarged tonsils, naso-pharyngeal catarrh, floating bodies in the vitreous, otitis media, etc., were discovered, showing that the origin of the false perception was due to a pathological process. This much is necessary to stamp the experiences with the feeling of subjectivity — of having risen in the environment. The specific elaboration of this scenery material into perception of voices (for example) is what is attributable to the central nervous organs.

The cases cited lead naturally to four conclusions. First: Hallucinations are false perceptions. To have a false perception there must be something to perceive, and that something is in the environment and can only enter as a factor into the mental life through the intermediation of sensations. Ideas cannot be perceived.

Second: Hallucinations are secondary sensations either arising in the same sensory field, in which case they might be described as illusions in the sense of Esquirol, or arising in other sensory fields, in which case their secondary character is quite clear.

Third: The mental state in illusions and hallucinations is identical.

Fourth: Given the sensory elements the falseness in their perceptions is due to central derangement.

It is necessary, however, in order that the particular sensory stimulus receive the specific interpretation that stamps it as an hallucination that there be a certain state of "preparedness" on the part of the mind. The mind of the patient with tinnitus aurium who hears a voice is especially attuned to respond in that particular way. Naturally then, the paranoiac, harassed by all manner of suspicions, trusting no one, feeling that all are leagued together to accomplish his ruin, suffering from almost continuous entotic sounds, should sooner or later begin to single out from this constant jumble of buzzing, humming and ringing, the voices of his enemies.

It is not necessary that a peripheral process be pathological in order to account for an hallucination, as witness the dream hallucination and the hypnotic hallucination, but it is hardly conceivable that the auditory hallucinations of a paranoiac which are practically constantly present, unless the patient's attention be distracted, could be produced by other than a constant irritant, which, of course, would necessarily be pathological in origin. The necessity of a most careful and painstaking examination of all hallucinated cases is apparent, especially when we remember the multitudinous possibilities of arousing secondary sensations in other sensory fields. With all these possibilities in mind the author would be loath to accept other than a peripheral explanation of any hallucinated case.

Bechterew [2] has made an extensive survey of the literature bearing on the subject of hallucinatory insanity following affections of the ear, as well as a careful clinical study of patients in whom affections of one or other of the senses appear to have been the starting-point of insanity. This is especially the case with diseases of the ear. Subjective sounds pass into definite illusions ending in insanity with hallucinations and delusions. In these cases, it is assumed that there was a predisposition to mental derangement. In the beginning the patient interprets the sounds into voices, which are generally unpleasant. They reproach, insult or threaten him. He is terrified or excited. Then begins a struggle between the sane understanding and the suggestive illusions. Sometimes one or more of the senses are involved; sometimes the sounds or voices are confined to one ear. If the voices or spectra overpower his reasoning faculties, he begins to answer the appearances or act as if they were real. Then there will be times in which he doubts the reality of these illusions. If his mental powers are unstable he ends by assuming that they come from something without, acts upon this belief and allows his fancy to construct a whole set of hallucinations and delusions. Insanity of this kind is sometimes obstinate. The intensity and the renewal of the delusions is favored by each exacerbation of the disease of the sensory organ affected. Indulgence in drink may increase the liveliness of the sensory illusions. The patient's recovery is often dependent upon the cessation of the original irritation. Enduring insanity may be due to a chronic affection of the middle ear, which might escape attention if inquiry were not directed toward the state of that organ. He reports four striking cases.

[2] Monats. f. Psychiat. u. Neurol., Sept., 1903.

KATATONIC DEMENTIA.

Mouratoff [3] discusses the question whether katatony is a morbid entity, or whether it is a clinical symptomo-complex, which enters into the most varied psychic troubles. In estimating the general results of different authors and of his own personal observations, he is led to believe that there exists in the course of katatony a certain definite variation of symptoms, with constancy of one cardinal symptom and with a constant terminal issue. It is another question whether we may regard katatony as an independent nosologic group, or as a clinic form, which enters into another more vast group of maladies. As yet we are unable to give a definite response to this question. We must say that we ought to act with prudence in laying down in psychiatry new independent nosologic groups, seeing the variance of commentaries upon clinic data, and seeing the indetermination of the nosology and etiology of psychic maladies. Outside of a quite moderate number of toxic forms, parainfectious and degenerative, we, in other cases, recognize only clinical complexes, determined and with determined course. In this point of view katatony is a morbid entity. The beginning, so to speak, of the nosological determination of katatony has already been given by Kahlbaum himself, who associates it with " hebephrenia," that is to say, with degenerative psychoses in adolescents, passing into dementia. Later, Kraepelin and Schüle associate, in a manner still more decided, katatony with the group of psychic degeneracies. In fine, it is very probable that this lesion, in its turn, basing itself upon its clinic type, may enter into a vast group of psychic degeneracies and present among them a morbid form, the clinical limits of which, recognized for the first time by Kahlbaum, ought to be submitted to a study and a development more detailed.

Bruce [4] considers that, 1. Katatonia is an acute toxic disease with a definite onset and course, in which the symptoms vary according to the resistive power of the patient, but in which the following diagnostic symptoms are never absent: A prodromal period of gradual onset, which leads into the period of acute onset, with aural hallucinations, mental confusion, paroxysms of excitement, impulsive actions, katatonic spasm of the muscles, a hyperleucocytosis which at the termination of the acute stage indicates a virulent toxemia. In the second stage a condition of stupor with muscular resistiveness to passive movement.

2. That even at the onset of the disease there is in about 70% of the cases an agglutinin in the blood-serum which appears to be a specific agglutinin to a short streptococcus which was isolated from the blood of an acute case of katatonia.

3. That by infecting rabbits through the alimentary tract or blood-stream with this streptococcus a condition of malaise with irregular temperature, increased skin reflexes and mental hebetude is induced. This disease tends to terminate naturally in healthy rabbits in about six weeks, and a condition of immunity is established to this organism.

4. The treatment by an antiserum obtained from a goat has given no beneficial results.

5. The active immunization of patients in the stuporose state produced no curative effect.

6. The active immunization in the acute onset of the disease, tried so far in one case only, produced undoubted benefit, but how this beneficial effect is brought about cannot be explained by any theory at present held with regard to the production of immunity.

[3] Arch. de Neur., vol. xvii, 1904, no. 97. Jan. Journ. Nerv. and Ment. Dis., 1904, vol. xxxi, no. 11.

[4] Journ. of Ment. Sc., vol. xlix, no. 207, 1903.

PROGNOSIS OF GENERAL PARESIS.

Gaupp [5] discusses the question as to whether the prognosis in dementia paralytics is always unfavorable. It is first necessary to determine whether complete and permanent remissions ever occur. Mendel is quoted to the effect that 80% of his cases died before the end of the fourth year, 66% of the remaining during the second, and 50% of the total number succumbed during paretic seizures, while the statistics of Linstow and Van Husen indicated that from 70% to 75% of their patients afflicted with this malady did not live three years. In 175 cases at the Heidelberg clinic, 67 represented the chronic dementing form, and the average duration of life of this type was two and a half years, while 65 were examples of the expansive or classical type of the disease. Among the former, 15% had not died at the end of six years, and 7% of the second group lived more than five years. The writer is exceedingly skeptical about the existence of cases of true paresis which are reported to have lived fifteen or twenty years. After referring to the comparatively long duration of the disease where syphilitic infection is marked as compared with the cases in which it is not, he discusses the affirmation of Mendel to the effect that the character of the disease is changing; an opinion that Gaupp affirms cannot in the light of present facts be substantiated. He also quotes to the same effect, from the work of Fürstner, Angiolella and Van Husen. The remissions occurring in the hypochrondriacal depressed forms are less frequent than those in the classical type. The gravity of the prognosis as regards an early termination of the disease is distinctly worse when the speech disturbances of specific paretic symptoms become marked. The juvenile and senile forms are said to be irregular and of longer duration than the other types of the disease. Charcot is quoted to the effect that tabetic symptoms may complicate those of paresis in one of three ways. That most commonly reported is that the lesions in the posterior columns and cortex begin about the same time. The cases of tabo-paresis in which the cord lesion develops at a much earlier period than

[5] Deut. med. Wochn., 1904, nos. 4 and 5. Jour. Nerv. and Med. Dis., 1904, vol. xxxi, no. 9.

do those in the cortex are shown to present considerable clinical variations such as well-preserved memory and attention with less general disturbances in intellect as compared with the other types of the disease. The contention made by Wernicke and others that syphilis is always the cause of general paresis is disputed, as well as the reports of cures by Schüle, Schafer, Svetlin, Tuczek, Holban and others. He thinks that it is not improbable that many of the so-called recoveries are cases of manic-depressive insanity, alcoholism, katatonia, or hysterical degeneracy and not true paresis. One of the most interesting points discussed in the paper is whether during the remissions there may be a complete disappearance of physical and mental symptoms. It is probable that the majority of observers have been too dogmatic in declaring that the physical symptoms, such as diminished light reflexes, absence of knee jerk and marked speech disturbance, never completely disappear. Not only do these symptoms occasionally subside, but even well-marked mental aberration may show remarkable remissions or even completely pass away. The point is emphasized that if such remissions do occur it does not follow that there has been a synchronous disappearance of the changes in the central nervous system. The case reported by Alzheimer is referred to, in which there was a complete remission of all symptoms, but when the patient died of an intercurrent trouble, distinctive lesions of paresis were found to be present in the central nervous system. A disappearance of all the somatic symptoms without a marked improvement in the mental never occurs, and in this feature the malady differs essentially from cases of alcoholic dementia. Not more than 10% of all the cases have true remissions and only 1% an intermission. The length of these reported improvements varies between a few weeks and several years. The remissions are much more apt to occur in the cases where the onset is acute provided the patient lives through this period, than in the cases where the disease in the initial period presents a more chronic and insidious form. The most frequent remissions are found in the acute, expansive, circulary and katatonic forms; less commonly in the depressed and chronic dementing type. The fact that certain cases show an improvement in the symptoms after an acute febrile process due to infection, gangrene of the lung, small pox, scarlet fever, etc., is referred to, but attention is also called to the important fact that a great number of paretics suffer from infections, such as cystitis, pneumonia, without showing any improvement in their condition. In conclusion, he affirms that the so-called cases of paresis which are apparently stationary for years are not examples of this disease, but are to be grouped as instances of diffuse cerebral syphilis, alcoholic dementia, traumatic dementia, arterio-sclerotic disease, dementia precox. Dementia paralytica is a progressive disease. The large group of so-called atypical or pseudo-paretics needs to be more carefully investigated.

MANIC-DEPRESSIVE INSANITY.

By manic-depressive insanity Thompson[6] understands any case of functional psychosis where depression and exaltation are confused in an attack of a certain duration, which repeats itself several times during the life of the patient. Between the attacks there is a period during which the symptoms disappear more or less completely. Kræpelin, while recognizing a simple melancholia at the age of involution, regards both mania and melancholia occurring in young persons as episodic only, and a phase of manic-depressive insanity. With regard to mania the author agrees with him, but does not doubt the existence of a simple periodic melancholia (though rare) and gives the history of a case to prove it. Does a case showing a phase of excitement followed by one of depression, or vice versa, belong always to manic-depressive insanity, or may such a manifestation occur only once in a patient's lifetime and merit the name of idiopathic double form insanity? Kræpelin thinks it always a phase of manic-depressive insanity, though the interval between attacks may extend over a number of years. The author disagrees with this conclusion, and gives sketches of two cases, one of which has remained well for four, the other for nine, years after a single attack. To the question if it is possible to differentiate a case of manic-depressive insanity from dementia precox during the first attack, he replies, Not always. To assist in such differentiation he gives the characteristics of the stupor of manic-depressive insanity on the one hand, and of katatonia on the other. He states that in the first, conception, course of thought and orientation are affected, while in katatonia, the moral reaction, facility of acting and coherence of phrases are disordered.

SOCIAL CAUSES OF ALCOHOLISM.

Sullivan's[7] investigation on alcoholism leads him to the following conclusions:

1. In considering the social causes of intemperance, which are by far the most important, it is necessary to distinguish two opposed types of drinking, *viz.:* the drinking that goes with conditions of relative luxury, and finds its most frequent expression in ordinary convivial drinking, and the drinking that goes with conditions of relative misery, of which bad industrial circumstances are the most considerable factor.

2. Convivial drinking may and often does lead to drunkenness, but, at least in its pure form, does not tend very much to chronic alcoholism. Industrial drinking on the other hand, while leading also, though less immediately, to drunkenness, tends rapidly and fatally to chronic intoxication.

3. From a statistical point of view, therefore, while chronic alcoholism always implies the existence of drunkenness, drunkenness by no means implies the existence of chronic alcoholism. In England this divergence between the two phe-

[6] Jour. de Neur., vol. ix, 1904, no. 2. Jour. Nerv. and Ment. Dis., 1904, vol. xxxi, no. 11.
[7] Jour. of Ment. Sc., vol. l, no. 210, 1904.

nomena is best seen in the prosperous mining districts, which by reason of their prosperity are at once more drunken, but less alcoholic, than any other part of the country.

4. The graver social evils that are in any important degree caused by alcohol are related to the chronic intoxication, and are, therefore, mainly due to industrial drinking.

5. While educational, religious, and similar influences can control the excesses of convivial drinking, they have but little action on industrial alcoholism, which can only be checked by raising the standard of living, and, in a minor degree, by such methods as restricting the facilities for obtaining alcohol during work hours, providing hygienic substitutes, and so forth.

CRIMINAL TYPES.

Speranza [8] in this paper endeavors to apply Sergi's theory of the survival of the weakest to the born criminal, and to explain thereby the persistence of the criminal type. He sets out with the fact of common observation that the physically weak often outlive the physically strong, for "while the latter struggle, the former submit." From his very conception the individual is at war with numberless forces that tend to destroy him. Complete adaptation to the environments means health. But there is also an imperfect adaptation which gives us a surviving weakling, such as the neurasthenic. "It is not only those that offer the greatest resistance to the change of environment that survive, but also some few of those who offer the least resistance." Passing from physical to moral and social phenomena, the same rule applies. The parasite and criminal degenerate are not the fittest, yet they survive. They survive not by reason of their strength, but because they submit to what are to them abnormal conditions. It is because of such imperfect adaptation that the criminal is apt to break the rules of the body social. Heredity alone cannot explain the vitality of the socially unfittest. The impulse of nature would, if anything, tend toward health. And the procreation of degenerate children defeats itself. How, then, do we account for the persistence of the criminal type? Social conditions will not explain it, as improvement in such social conditions does not seem to decrease but only to modify. The author finds the cause in the adherence to unscientific penologic principles, and to mistaken altruism. He insists on the necessity of a more scientific classification between merely bad or mistaken men and criminal men. The test of the latter is the "lack of response to reformative influences," and it matters little whether the offence is great or small, its reputation is the test of criminality. Criminals of this class are comparatively few; the largest number of those classed as criminals are not such. The true altruism is to help the latter; the wrong altruism is to help the former as part of the same large deserving class.

[8] Am. Law Reg., March, 1904. Jour. Nerv. and Ment. Dis., 1904, vol. xxxi, no. 11.

HEREDITY IN NEUROPATHOLOGY.

Under this head Strohmayer [9] considers the difficulties of the study of heredity, and warns against falling into the *post hoc propter hoc* argument. He concludes that what is needed is: 1. Psychiatric study of the ancestral tree, which takes into consideration the mental condition of all the direct ascendants through a number of generations. 2. Only a small, little-fluctuating community seems suited to this method of research. 3. As sources of information the admission books of the asylum, the church register, the directory, and last but not least, the case book of the family physician, should all be utilized.

THE CONSIDERATION OF THE EPILEPTIC BY THE COURTS.

On this question Chapin [10] is of opinion that as a general rule most epileptics show some mental failure, such as loss of memory, irritability, a tendency to become suspicious, ugly, revengeful, are easily aroused to passionate outbreaks, and are emotional, and often the moral and religious sides are intensified, as the disease and age advance.

2. That these changes become more marked during the interval between convulsions as those intervals diminish.

3. That in every medico-legal inquiry in any alleged or suspected case of epilepsy it is essential to establish the existence of a paroxysm, or paroxysms, beyond a reasonable doubt by actual observation, and not by hypothesis alone.

4. That in a trial of a criminal where epilepsy is interposed as a defense, if mental or moral degeneration has actually taken place, and when the occurrence of epileptic convulsions has been shown to exist, the defendant is then entitled to acquittal and disposed of as provided in such cases.

5. If a person has committed a criminal act and has had epileptiform seizures in infancy; or at some period has had an epileptic convulsion and the criminal act was not committed near to or succeeding a seizure and no mental failure can be shown, then the most the defendant can expect is conviction with a recommendation to mercy, if the charge is proven.

6. That the convulsion is not the actual disease but is an outward manifestation of a complex physical and psychical state due to some disease, vicious habits, traumatism, or the result of degeneration following an unfortunate inheritance, and when it has been once established and recurs, even at prolonged intervals, it is the rule of experience that mental and moral degeneracy occurs and progresses gradually.

EXHIBITIONISTS BEFORE THE LAW.

Burgl [11] as advisor to the court has had occasion within four years to examine twenty-five persons accused of exposing their genital organs in public. He thinks that in the great majority of cases this

[9] All. Zeit. für Psych., vol. lxi, 1904, no. 3. Jour. Nerv. and Ment. Dis., 1904, vol. xxxi, no. 11.
[10] Alb. Med. Ann., Feb., 1904.
[11] All. Zeuit. für Psych., lx, 1903, 1 and 2. Jour. Nerv. and Ment. Dis. 1903, vol. xxx, no. 7.

act is a manifestation of mental disorder. Each case should be considered under the following heads: (1) It may be the result of mental weakness. (2) Uncontrollable impulse. (3) An imperative conception, "*Zwangshandlung.*" (4) An accidental occurrence. (5) Carelessness, or (6) The voluntary act of a mentally normal individual.

Under (1) he includes both congenital and acquired mental weakness. In these cases the act may be due to lack of ethical feeling, and of inhibitory contra-conceptions. It is observed in imbeciles of various grades, in paralytic and senile dementia, in epileptic delirium, after trauma, and in the pathological reaction to alcohol common in epileptics and neurotic subjects.

(2) The cases due to uncontrollable impulse may result from sudden vivid hallucinations or delusions, and sometimes coming on from time to time appear to be a manifestation of periodical insanity ("periodical sexual psychopathy").

(3) The cases in which the act is the result of imperative conceptions, he separates from those due to impulse. The presence of an imperative conception alone does not necessarily make the patient legally irresponsible, but it may be accompanied by an effort of such intensity as to cause an obnubilation of consciousness, in which case self-control is lost and mental irresponsibility may ensue.

(4) Exhibition may occur accidentally through forgetfulness about adjusting their clothing upon the part of weak-minded or mentally confused individuals.

(5) Especially in old and feeble-minded persons there may be such carelessness as urinating or adjusting a truss in the street.

(6) Lastly, exhibition may be deliberately practised, generally under great sexual excitement, by mentally normal individuals, usually upon meeting one of the opposite sex in a lonely place. In each case an inquiry into all the circumstances of the case attending the misdeed should be made, and if possible the statement of the patient in his own language should be secured. By so doing the physician will often be able to detect gaps in the memory which indicate the presence at the time of some disturbance of consciousness (epilepsy?).

Each case should be judged upon its merits. A history of repeated exhibitions, especially in a very public place before numerous witnesses, points almost unerringly to mental aberration.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

MEETING OF APRIL 11, 1904.

DR. E. H. BRADFORD read a paper on

METATARSO-TARSAL VALGUS, OR HUMPED FOOT, IN ITS RELATION TO BOOTS.*

DISCUSSION.

DR. R. W. LOVETT: Dr. Bradford has gone into the subject so thoroughly, that it remains only to call attention to perhaps one or two matters of individual experience. Of course, we all labor under the same difficulties in providing people with proper shoes. If a cast is made of the foot and a last made from the cast and shoes made from it, it is a very expensive procedure. The other way is to do the best we can in fitting the people with ready made or so-called custom made shoes. I have had some experience during the last few years in trying to provide proper shoes for the nurses of one of our large hospitals, and during that time I have seen six hundred nurses, and tried to provide them with better shoes than they would probably have had without supervision. My experience has not been wholly satisfactory, as I have not been able to provide them with a proper shoe. I think the shoes worn are better on the average than they were eight or nine years ago, but they are not what we want yet. It seems to me that the problem is not only to give a good shape, but a shoe that will give proper support to the muscles. Of course we know that wearing slippers continually is likely to cause trouble. I think also that a shoe with too stiff shank is likely to lead to trouble. A thoroughly good shoe should have not only the proper shape but the proper amount of support and resistance in sole and leather.

The most common practical difficulty met in fitting the nurses is the binding of the vamp seam over the front of the top of the foot. This pulls down on the arch at the end of each step and tends to break down the arch. It is almost impossible to get a ready or custom made shoe on the present styles of last that will not do this.

Finally, shoes seem to have a certain individuality. Two pairs may be made on the same last and one pair will be perfectly comfortable while the other pair cannot be worn.

DR. E. G. BRACKETT: One of the most encouraging signs at present is that the necessity of urging the proper shoes is almost a thing of the past. We have no longer the task of insisting that patients should choose the proper footwear, but rather to instruct them as to what this proper footwear is. In the attempts to find proper shoes, and at the same time to satisfy time-bound conventionalities, a great deal of stress has been laid on the straight inside line, and the idea seems to be firmly rooted that this straight inside line, no matter how obtained, is the chief essential. This inside straight line of the shoe may be fallacious, and is so when it is obtained at the expense of other lines of the foot. It must be remembered that the lines which connect the bearing surface of the foot are straight rather than curved. The bearing parts of the foot are the heel and the heads of the metatarsals, and the lines connecting these points make practically a triangle, the inside of which can be drawn from inside of heel to about through the second toe, making what can be called a midline of the foot. This line is parallel to the inside border of the foot. The lines of the shoe should correspond to these lines of the foot. If these lines of the shoe are straight and the inside line of the shoe is parallel to this straight inside line then they coincide with those of the shoe, which may then have its natural bearing. If, on the other hand, a straight inside line is obtained by throwing in the fore part of the shoe, until the retreating line of the pointed toe coincides with the line of the back of the shoe it makes a practical fallacy, for such an inside straight line is made by a curved midline of the shoe, in which case the foot will not assume its natural position, but cuts across the shortest distance between its bearing points. We then have the problem of making two ends of a straight line parallel to the two ends of a curved line, which results practically in the pushing to the outside of the great toe.

* See p. 560 of JOURNAL.

Dr. John Dane: I would like to speak a few words about the heel. The high heel does considerable damage in crippling the foot. For instance, even a comparatively low heel causes the foot to pitch forward, and when the heel is made higher and higher still, as we see them, the toes in order to accommodate this pitching downward of the foot, must be bent upwards in order to get the necessary grip on the ground. Of course, that means over stretching of the flexor muscles and a crippling of the whole front of the foot. A foot that has worn that sort of a shoe for a few years is not only disabled for grasping the ground, by the front part, but it cannot bring the heel down owing to a shortening of the tendo-achilles. In order to bring the heel down you must be able to stretch the tendo-achilles.

Another trouble comes from the fact that an improper shoe often causes great pain to a foot that is already malformed from wearing badly shaped shoes. The patients are right when they come back and tell us that they are more comfortable in the shoe with a narrow pointed toe and a high heel, for by crumpling the weakened toes together, such a shoe gives a feeling of strength to the fore part: and by relieving the strain of overstretching the shortened tendo-achilles, it relieves pain in the heel and calf. The ballet dancer wears the worst type of shoe of this kind — the high, pointed, unstable heel and the narrow, pointed toe. Such a shoe cripples the foot at both ends.

Dr. E. H. Bradford: In answer to remarks made by certain shoe manufacturers present, Dr. Bradford said: The evening shoe is the one a man puts on when he is on parade. Something like evening dress. That is the reason for evening or conventional shoes. We have to accept them. It is the dictate of fashion, and living as we do in artificial society we have to accept it.

Now the working shoe is the shoe we wear when we are at work. Now, of course, that is the shoe we must test constantly. Now just what line to draw between convention and what commerce obliges us to accept, and what we can stand, is difficult to say. The manufacturer and the dealer have given us much useful information, but I was in hopes they would say why shoes are manufactured and sold that are so obviously unsuited for comfort and health. There must be something in the structure of shoes that causes trouble — why the counter is made the way it is.

What Mr. Small has said is very interesting. He has lived a good deal among bare-footed people, but he tackles a very difficult subject when he speaks of the physiology of gait. I am not so sure he is right about the cuboid section. I had the privilege once of being in a village of bare-footed people. It is very difficult to tell if the cuboid section strikes. We see where the heel strikes and the toe, but very difficult to see where the cuboid strikes. If Mr. Small will go over to Cambridge and look at the oldest foot-print there he will see that the cuboidal section does not strike.

Sometime I hope there will be something of a meeting where Labor and Capital will meet — Capitol being represented by the Shoe Manufacturer, and Labor by the Physician.

Then I was very much interested in what Mr. Richardson said about selling shoes. Of course, we know the shoe dealer is not to blame. We all know that very often people do not want to wear a sensible shoe.

I would like to suggest that the Chair appoint a committee of physicians who are interested in this matter to draft what they consider the requisites for the proper shoe for working people — the rules when completed to be submitted to some committee of shoe dealers, in order that something may be done for the public. As it is now, shoe manufacturers and dealers must be very much annoyed. We doctors do not know how to make shoes. The efforts of John Brisben Walker, editor of *The Cosmopolitan*, who is at present getting up articles on what constitutes the proper shoe, are interesting. He has asked women, he has asked generals in the army, and gymnasium instructors, but he has not asked the Boston Society of Medical Improvement.

AMERICAN PEDIATRIC SOCIETY.

Sixteenth Annual Meeting at Detroit, Mich., May 30, 31, June 1.

(Concluded from No. 20, p. 549.)

Third Day — (Continued).

DYSPNEA: CENTRAL, PERIPHERAL, OBSTRUCTIVE. CASES.

Dr. W. P. Northrup said that every intubationist was interested in the different varieties of dyspnea, and he wished to call attention to some unusual types. The first type was dyspnea of peripheral origin, neuritis presumably diphtheritic, and paralysis of the diaphragm. The second type was dyspnea of central origin, infectious transverse myelitis and paralysis of the thoracic muscles of respiration. The third type was obstructive and not of the naso-pharynx, nor yet of the larynx, but due to accidental presence of air in the thorax, probably due to faulty exploration by needle.

Dr. Charles G. Jennings said that he had reported a very interesting case at the Boston meeting of the society; the case was one of auto-intoxication with clinical manifestations appearing first as attacks of coma; the clinical picture soon changed and instead of the condition manifesting itself as coma, asthma set in. Once, in order to facilitate exploration of the nasal chambers, adrenalin was given, which induced a severe attack of asthma. During the past two winters the attacks have been relieved by heroin.

Dr. L. E. Holt said that these attacks in children of six or eight years of age were very pitiable and the only thing to be depended upon was a change of climate. He had always believed that if a child was not relieved of the asthmatic attacks before the age of ten or twelve, he would become an habitual sufferer. Such climates could not always be found. He advocated improving the general nutrition of these patients by giving iron and cod liver oil, particularly during the winter and spring, and keeping them as much in the open air as possible. These attacks were very likely to follow whooping cough or measles. He did not believe the general practitioner or the specialist took these cases seriously enough; they should insist upon the parents doing all that was possible while they were small and before the habit became fixed.

Dr. Floyd M. Crandall said that they all knew how hopeless and how serious these cases were when they had gained any headway and, therefore, if anything was to be done for them it should be done early and particularly after measles. The third type of cases referred to by Dr. Northrup brought to mind a case that was being aspirated by means of the needle, bottle and pump; air was pumped into the chest and the child was in a very serious condition.

Dr. Isaac A. Abt spoke of the dangers of aspirating the chest when done by the unskilled. He had frequently noticed hospital internes poke the needle between the ribs, etc., and they were taught that no harm could be done if only the needle was clean.

Dr. Augustus Caille had seen pneumothorax occur twice after puncture of the chest, and it was due to too extensive lateral excursions with the needle.

With regard to asthma, he recalled the time he was the guest of Dr. Dunbar of Hamburg and he was shown an interesting experiment. The doctor was a hay-fever sufferer. He took the pollen poison in solution and instilled the eyes of both his own and Dr. Caillé's. It did not affect the latter, but in a few minutes Dr. Dunbar's became blood red. He then took the anti-toxin (pollantin) and introduced it into the eye, and within half an hour all evidence of vaso-motor disturbance had disappeared.

DR. W. P. NORTHRUP, New York, said that the people should not be permitted to talk about "outgrowing" asthma.

ACUTE LEUKEMIA, WITH REPORT OF A CASE.

DR. F. S. CHURCHILL, Chicago, read this paper. He said that nothing seemed to have a predisposing cause, unless possibly tonsilitis, and the changes here might be the result rather than the cause. No age was exempt. The onset might be sudden, but often was insidious. The general course of the disease in children was practically the same as in adults. The spleen was enlarged in all cases and it was not an infrequent phenomenon to see a diminution in the size of the spleen just prior to death. The duration of the cases was from four and a half days to five months, although in some cases it seemed impossible to say just when the disease began. The duration of the disease seemed to depend upon its kind. The chief interest centered in the blood examination. There was a diminution in the erythrocytes and in the hemoglobin. The number of leucocytes varied from 6,000 to 810,000. A falling white count showed approaching death. Age had no effect upon the total white count. The polymorphonuclears were reduced to a remarkable degree; myelocytes were extremely rare. The tendency was for the blood to turn to the fetal type. In twenty-nine cases there was but one in which hemorrhages occurred. Leukemia presented a picture of a turning upside down of the blood count. The differential count was the only way in which to make an accurate diagnosis. The effect of intercurrent diseases seemed almost always to show a fall in the leucocytes, as shown by Dock. The results of autopsy threw but little light upon the problem. The bone marrow only might be involved, but it was always involved. The authorities claimed that no case of leukemia existed without involvement of the bone marrow, and therefore, all cases were myelogenous in type. Bacterial examination was of no value; no specific organisms caused the affection. Any organisms that were found were simply invaders and possibly entered by way of the tonsils. He referred to Nicoll's classification into three groups, *viz.*, toxic, infectious and neoplastic or cancerous. The true nature of leukemia was unknown and the treatment was of no avail. X-ray had been tried without success in the belief that the disease might be malignant in nature. In such an obscure and fatal disease he believed that any treatment was justifiable and the sera injections seemed to offer the greatest hope of cure. The disease was probably more common than generally supposed. Prior to 1898, only 7 cases had been recorded; since that date 22 had been recorded. Experimental inoculation with leukemic blood he believed was warrantable and directly into the bone marrow.

PRIMARY SARCOMA OF THE LIVER.

DR. L. EMMETT HOLT reported an instance of adeno-sarcoma of the liver occurring in an infant who was admitted to the hospital two weeks before death. The family history was negative. The patient was a full term baby, breast fed, and was always considered to be healthy until two months before it came under observation. Then appeared what was supposed to be symptoms referable to some gastric and intestinal trouble. The child lost weight and, on account of this, advice was sought. Examination revealed a rather poorly nourished child, and on the right side of the abdomen a large tumor could be felt, which extended beyond the umbilicus and down into the pelvis, filling the entire half of the abdomen. The surface of the tumor was smooth and the outlines distinct. It was soft to the touch. Examination of other organs was negative. The temperature ran between 100 and 102. The supposition that it might be an abscess of the liver led to a puncture of that organ and the withdrawal of a bloody fluid, fatty droplets, liver cells, but no pus. The hemoglobin was 55% and there were 17,000 leucocytes, but no differential count was made. The surgeon who was called thought that an incision was indicated, and under cocaine anesthesia this was done. The finger passed into a mass of broken down material. The microscopical examination did not reveal pus. Drainage tube was inserted and the wound dressed. Two weeks after the patient died of exhaustion. Twelve hours after the autopsy was made and the liver measured 19 cm. long and 21 cm. wide and weighed 735 gms. It was of light brown color. There was a round bulging mass which projected 2 cm. above the liver surface. The fluctuating tumor was due to necrosis. There was no peritonitis or thickening to be noted. There was a pericarditis, a bronchopneumonia, but no metastases were found. The anatomical diagnosis was neoplasm, fibrinous bronchitis, atelectasis. The microscopical examination showed adenoma with sarcomatous degeneration in the center. Only two other such cases had been reported in children. Primary sarcoma of the liver was not so very frequent and all that were reported were of the round-celled variety, but there was a large number of secondary sarcomas reported. The presence of a distinct capsule around the neoplasm seemed to argue in favor of the adenoma being the original process to which the sarcoma was added at a later date.

Officers elected: President, Dr. Charles G. Jennings, Detroit; first vice-president, Dr. Charles G. Kerley, New York; second vice-president, Dr. J. Park West, Bellaire, Ohio; secretary, Dr. Samuel S. Adams, Washington; treasurer, Dr. J. Park West, Bellaire; recorder and editor, Dr. L. E. La Fetra, New York.

Recent Literature.

Lectures on Clinical Psychiatry. By Dr. EMIL KRAEPELIN, Professor of Psychiatry in the University of Munich. Authorized Translation from the German, Revised and Edited by THOMAS JOHNSTONE, M.D., Edin., etc. pp. 302. New York: William Wood & Co. 1904.

Considering the welcome that has justly been accorded the teachings of Kraepelin by students and practitioners of psychiatry generally, it is somewhat surprising that no adequate and unadulterated English rendering of them has appeared until now. In this volume the author's views of mental disease in all its clinical aspects are fully set forth, and it is remarkable how large a field is satisfactorily covered in these lectures which he modestly labels "A Guide to the Clinical Investigation of the Insane." The method

followed is a model for all clinical lecturers, and stamps upon the mind as no other can, not only the condition described but its relations to others as well. The detailed picture of the disease is not only most carefully drawn but in the process is interwoven a running analysis of the differential diagnosis. No less striking and helpful are the apt and concise terms and expressions descriptive of the salient conditions of thought and action which distinguish the various forms of insanity. An unusual and welcome feature is the verification of the diagnosis by notes on the patients' condition several years later.

The opportunity of thoroughly familiarizing themselves with Kraepelin's larger treatise on the whole domain of psychiatry is given to few, but all may be sure of finding in these lectures the essence of his teachings and the details necessary for a practical knowledge of the subject. Taken as a whole, it has not, to our mind, its equal in the English language as an exponent of clinical psychiatry as taught to-day.

Not a little of the value of this edition of the work is due to the translator who has given every shade of the author's meaning its right interpretation and clothed it in a style that is clear and attractive.

Manual of Physiological and Clinical Chemistry. By ELIAS H. BARTLEY, B.S., M.D., Ph.G. Professor of Chemistry, Toxicology and Pediatrics in the Long Island College Hospital, Author of "Medical and Pharmaceutical Chemistry." Second Edition, Revised and Enlarged. P. Blakiston's Son & Co. Philadelphia. 1904.

This is a small manual, consisting of 188 pages, devoted to experiments in physiological chemistry and to the ordinary clinical examinations of the urine, blood, gastric contents, feces and milk. The subject matter under these various headings is so brief that it is scarcely more than a working guide. The methods are, for the most part, accurate, and some of them are original with the author.

Kirkes' Handbook of Physiology. Fifth American revision. By FREDERICK C. BUSCH, B.S., M.D., Professor of Physiology, University of Buffalo. New York: William Wood & Co. 1904.

Even in its fifth American revision this well-known textbook has been allowed to retain many features characteristic of the English rather than the American methods of teaching physiology. For example, more than one hundred pages are devoted outright to histology, a subject taught as a part of morphology, not physiology, in most American medical schools. The pages newly introduced contrast pleasantly with the evidence of worn type seen in the unchanged parts. The recent important researches on the action of the digestive glands are reported briefly, but those on motor localization in the cortex are conspicuously absent. The book will continue to maintain its high place because of its good general qualities of orderly arrangement and conciseness and for the excellent illustrations.

Kirkes' Handbook of Physiology. Nineteenth Edition. By W. D. HALLIBURTON, M.D., F.R.S., Professor of Physiology, King's College, London. P. Blakiston's Son & Co. 1904.

Kirkes' Handbook in the hands of Professor Halliburton has so thoroughly renewed its youth that the publishers are justified in printing on a fly leaf "Halliburton's Handbook of Physiology." The book is printed with new type, has 148 more illustrations than the American edition, and has been brought up to date in every particular by a master teacher. One excellent feature of this edition is the discrimination in the text between elementary and advanced information. The advanced work has been inserted briefly in small print; the student may therefore get first the essentials, in the large text, and later add to these by study of what is given in the smaller type. This edition, which is advertised as the only authorized edition, can be recommended for the general good qualities which Kirkes' Handbook has always manifested, plus the many improvements which Halliburton has wrought.

A Textbook of Physiology. By ISAAC OTT, A.M., M.D., Professor of Physiology in the Medico-Chirurgical College of Philadelphia. 137 illustrations. Philadelphia: F. A. Davis Co. 1904.

This book, written at the solicitation of students who had attended the author's lectures, is marked by the easy conversational style of the lecturer. Subjects are approached with directness as in a syllabus, and are disposed of diagrammatically without discussion. Students may be led into wrong conceptions of function by such uncritical statements as this: "We have then two glands, one of which arrests peristalsis — the adrenal; the other, which excites it — the spleen," when the evidence for the statement comes wholly from injection of extracts of these organs. The illustrations, taken mostly from other textbooks are of the nature of lecture diagrams. The book is a royal octavo volume, 563 pages, but, as the author states in the preface, is elementary in character.

Clinical Lectures and Essays on Abdominal and Other Subjects. By H. D. ROLLESTON, M.A., M.D., F.R.C.P. Philadelphia: P. Blakiston's Son & Co. 1904.

The lectures and papers collected and published in this small octavo of 178 pages have all appeared previously in divers medical periodicals. There are seventeen distinct numbers. Among the titles are such subjects as: The Treatment of Gastric Ulcer, Primary Carcinomatous Stricture of the Duodenum, Some Points in the Treatment of Typhoid Fever, Primary Carcinoma of the Vermiform Appendix, Ascites, Hypostatic Albuminuria, Persistent Hereditary Œdema, Progressive Myositis Ossificans, The Antagonism of Some Diseases and the Curative Effect of One Disease on Another, Real and Reputed.

The student and the practitioner will find scattered all through these pages careful and accurate observation, and wise and useful suggestions.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, NOVEMBER 24, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

THE IMPORTANCE OF THE STUDY OF THE HISTORY OF MEDICINE.

IN an address delivered at the one hundred and fifth anniversary of the Medical and Chirurgical Faculty of the state of Maryland, Dr. Eugene F. Cordell makes a plea for the importance of the study of the history of medicine. Starting with the proposition that medical history is but a part of general history, he emphasizes the strange difference in the estimation in which the two are held in our system of education. No subject is considered of more importance than history in the literary courses of our universities. He finds from the register of students of the Johns Hopkins University that the number of those pursuing historical study is exceeded in only two other departments — English and chemistry.

As the result of some pains to ascertain to what extent the history of medicine is taught in this country, and of a correspondence with the deans of fourteen of our leading universities having medical departments, Dr. Cordell has tabulated the meagre replies received from Harvard, Yale, Cornell, Buffalo, Columbia, New York, Pennsylvania, Johns Hopkins, Maryland, Virginia, Tulane, Chicago, Michigan and Minnesota.

From this it appears that a full course of lectures, fourteen to sixteen in number, is attempted in but three, *viz.*: Universities of Pennsylvania, Maryland and Minnesota. There are four "lectureships;" one just established and still without an incumbent, and another held jointly with a "Clinical Professorship of Dermatology." One of the "courses" consists of three lectures. There is but one professorship and that an "Honorary" one. In two institutions "some" instruction is given by the Professor of Therapeutics and the Assistants in Surgery, respectively, in the latter case only in surgery. In one, and that one strange to say, Harvard, lectures were attempted, but "no great interest was shown" and they were discontinued. There is no uniformity in those receiving instruction; sometimes it is the Sophomores, sometimes the Juniors or Seniors, and sometimes any that *choose* to attend. In but one is the claim made that the course is compulsory. In none is there any examination. One can readily imagine what the attendance must be under such circumstances, and the experience of Harvard is instructive. However, according to the table, in three cases it is "good," "one-half the class" and "poor," respectively. The table gives the size of the medical libraries attached to the universities, and, finally, I would call your attention to that very useful auxiliary, the Medico-Historical Society. There are two of these, but as one is limited to a dozen graduates, is not attended by the students, and takes no part in their instruction, it does not concern us here. The other is the excellent Historical Club of the Johns Hopkins Hospital, founded in 1890, upon a very broad basis, and which has exercised a profound influence, not only locally, but throughout the entire country.

More than seventy-five years ago Jefferson provided for the teaching of the history of medicine in the University of Virginia. At the present time there is no course on the subject at that institution.

Dr. Cordell considers that the facts which he has gathered indicate a shocking neglect, an inexcusable apathy on the part of our medical schools; that this age is too much carried away with the rage for novelty; that haste is stamped on everything, and that this is particularly true of Americans; that we seem to be drifting more and more into mere machines, mere worshippers of physical science. He ventures the prophecy that the time is near at hand when the standing of university medical schools will be judged by their attitude toward this branch and when it will be assigned a front rank in the curriculum.

There is, undoubtedly, much truth and much to compel sympathy in Dr. Cordell's attitude toward this subject. We should be glad to know there was such a course in all our medical schools; but there is one maxim of the father of medicine with which we moderns are more and more impressed, — that art is long and time is brief. The decline of the lecture has kept step with the development of the laboratory and the clinic. The crowding of subjects and courses has outrun the lengthening of terms and the increase of years, and the prospective practitioner views with apprehension the advancing age at which his active work can begin.

The situation at Harvard and at the University

of Virginia reflects these conditions. The general tendency is to leave more and more to the student that which can be done apart from the clinic and the laboratory. In what remains of the lecture the student demands the practical summing up of the actual experience of the teacher. At Harvard two distinct attempts were made to present the study of the history of medicine, and these under the most favorable auspices, and the answer to Dr. Cordell's questions is: "Course attempted, no interest shown, abandoned."

Dr. Cordell sums up some of the advantages of the study of medical history as follows:

(1) It teaches what and how to investigate.

(2) It is the best antidote we know against egotism, error and despondency.

(3) It increases knowledge, gratifies natural and laudable curiosity, broadens the view and strengthens the judgment.

(4) It is a rich mine from which may be brought to light many neglected or overlooked discoveries of value.

(5) It furnishes the stimulus of high ideals which we poor, weak mortals need to have ever before us; it teaches our students to venerate what is good, to cherish our best traditions, and strengthens the common bond of the profession.

(6) It is the fulfilment of a duty — that of cherishing the memories, the virtues, the achievements, of a class which has benefited the world as no other has, and of which we may feel proud that we are members.

UNIFORMITY OF MEDICAL STANDARDS.

A difficulty in medical education which this country has had to meet in greater measure than many others is the inequality of requirements both for admission to the medical course and for graduation with the degree of doctor of medicine. It is eminently desirable in medical education, as in common school education, that standards be established which shall apply equally to various parts of the country. It is an anomalous state of affairs which permits the requirements for medical practice to be high in one section of the country and low in another. Illness is the same everywhere, and it is clearly for the good of the profession at large, as well as for the community, that physicians should be equally well trained in whatever part of the country they may choose to practise. Germany has set an example in this matter of uniform standards which other countries will do well to emulate. As is well known, students in the German universities pass from city to city, thereby gaining the advantage of a wider horizon and contact with different teachers, and finally receive their degrees at any one of the universities which they may have attended during their course of study. It is recognized that the degree is granted at certain of the German universities with less stringent examination than at others, but in general the standard of all is maintained at such a level that no invidious distinction can be made. Statistics of the German universities have shown the rather interesting fact that during the academic year of 1903–4, twenty-six men were graduated from Berlin, whereas fifty were graduated from the smaller university of Kiel and eighty-eight from Munich. This naturally gives no idea of the relative number of medical students studying in the different cities, but illustrates the simple fact, which we wish to bring forward, that the degree may ultimately be conferred at a smaller university with equal credit to the recipient.

That such a university system will ever prevail in this country is extremely doubtful, and perhaps not advisable, but the principle involved is one which it is of the greatest importance that those influential in medical education in this country should recognize. As a preliminary means to this end statistical investigations of exactly what has been done in America in our various medical institutions is of value. This work has been accomplished in a painstaking fashion by Dr. George W. Webster of Chicago, who is chairman of the committee of curriculum and preliminary requirements and first vice-president of the National Confederation of State Medical Examining and Licensing Boards. Dr. Webster's work, which has been published in the *New York Medical Journal*, shows, as did Dr. H. L. Burrell's paper in this Journal for Sept. 26, 1901, that there is a great lack of uniformity in regard to the length and character of individual medical courses in various medical schools

In forty-three institutions, upon which his first report was made, all prescribing a four years' course, it appears that the average time devoted to surgery was 596 hours, medicine 544, anatomy 549, pathology 295, obstetrics 177, gynecology 145, neurology 82, pediatrics 72, psychiatry and jurisprudence 27. These are some of the more striking figures, and certainly illustrate the mperfect balance between various subjects which is now prevalent. The proper division of time we cannot here enter upon, but it is clear that the changing demands of various

subjects must lead to the adoption of a sliding scale regarding the number of hours required for each.

Encouraged by this first report, Dr. Webster has offered a second report for the purposes of which the attempt was made to collect information from one hundred and fifty-seven medical schools in the United States. The answers to the circular sent out were very general, although a number of institutions failed to respond, and a very few, among which was the Harvard Medical School and the Albany Medical College, declined to fill out the blank for reasons not assigned. The result of this statistical study was surprising in the very great lack of uniformity shown in regard to the relative importance of the various studies as indicated by the time devoted to them. To bring out this fact clearly is certainly a matter of importance and must be the first step toward a greater uniformity. It is clear that there must always be a certain variation in the time devoted to subjects at various schools, depending upon the enthusiasm for teaching of individual instructors and the attitude of the student body toward their work. Nevertheless, with such statistics before us as Dr. Webster has provided, it should soon be possible to map out a curriculum which meets the needs of the greatest number, and adhere to it until such time as changing conditions demand modification. Naturally, the introduction of the elective system makes an added complication. We are convinced, however, that all means which may lead toward a more uniform standard are desirable, and such work as this which Dr. Webster has inaugurated is certainly a step toward that end. We are impressed with the fact that at the present time in many of our medical schools the importance of a subject to a student is lost sight of by the teacher. The rarities of medicine are presented to him and the commonplaces are too often neglected. Some check upon the present system is certainly desirable.

RAILWAY ACCIDENTS.

ATTENTION has been drawn of late to the extraordinary number of railway accidents in this country, resulting in loss of life or serious injury. The recently published bulletin of the Interstate Commerce Commission presents certain facts which are worthy of our attention. In the year ending June 30, 1904, four hundred and twenty passengers were killed on our steam railways, either through accident or through personal carelessness on the part of the employees. Comparing this record with the English railways for the year 1903, it is found that nearly eleven times as many passengers were killed by accident in this country as in the United Kingdom during an equal time. Furthermore, it is stated that last year only nine employees were killed in Great Britain by accident, whereas in this country there were seven hundred and forty-nine. A final basis of comparison between the English and American roads is that in England six hundred and forty-four deaths occurred as compared with three thousand seven hundred and eighty-seven in this country, being a ratio of nearly one to six, and that in spite of the fact that the total number of passengers in the United Kingdom was greater than in the United States.

The reason for this state of affairs is no doubt very subtle and difficult of analysis. Ultimately it must always come down to human carelessness, although such carelessness may in many cases not be blameworthy in the eyes of the law. We are apt to underrate the strain upon those who bear the responsibility of successful railway transportation. The complication of the system and the personal responsibility which rests upon individuals together make possible accidents, which, however much they may be deplored, are yet in a measure explainable.

Commenting on the psychology of railroad accidents, the current number of the *Journal of the American Medical Association* alludes to the opinion of a railroad president, who claims that certain accidents are due to temporary mental aberration which may occur in the most trustworthy employees without obvious cause. However true this may be, and we can easily recognize its possibility, railroad companies should appreciate clearly the strain to which their trusted employees are exposed, and, as our contemporary suggests, should so modify the work required that the possibility of mental lapses may at least be reduced to a minimum.

"Railroad work is often very exacting, and there is too frequently caused a degree of mental and physical strain that is inconsistent with competency adequately to meet emergencies. The human machine overtaxed is as dangerous as any other worn-out or weakened part of the railroad machinery. An engineer or dispatcher, whose nervous system has been strained almost to the breaking point, may be as much a source of danger as a weakened or broken bridge. Modern requirements of speed and close connec-

tions of fast trains render such a possibility more than ever a matter to be guarded against. There is, moreover, in the human machine the added difficulty that defects involving nervous accuracy cannot always be so easily detected as can defects in mechanical appliances. The greater is therefore the danger in requiring special stress and strain in railroad employees, and the more serious the responsibility of those who permit it."

This is certainly true, and we are inclined to think that if the subtle significance of certain symptoms of the nervous system were more clearly recognized and investigated, the peculiar and often inexplicable aberrations of engineers or switchmen, which lead to fatal accidents, might be averted. That such investigation is a matter of the utmost difficulty we do not question, but it is none the less incumbent upon railway managers to see that their employees are in perfect physical condition as well as the more mechanical parts of their system. The accurate and painstaking examinations which are now being made of the eyesight of railway employees is, of course, to be commended, but the investigation should not stop short of a thorough-going examination into the functions of the nervous system in general, to the end that those who bear the responsibility of many lives should be the most perfectly poised individuals which it is possible to obtain. The disparity between the accidents in this country and in England no doubt must also be explained by a combination of circumstances which we have not the knowledge to discuss, but the suggestion that the human mechanism be in the most perfect order is a matter which may well be drawn to the attention of officials.

MEDICAL NOTES.

A Centenarian. — Mrs. Catherine T. Rooney, who was reported to be one hundred and two years old, died at Fairfield, Vt., recently.

The Jefferson Medical College Library. — The report of the librarian of the Jefferson Medical College Library for the year just ended showed some interesting and noteworthy facts concerning the contents and circulation of the college library. There were three thousand and nine volumes in the library, of which four hundred and thirty-nine were added during the year; two hundred and three by gift and two hundred and thirty-six by purchase and binding, the largest gift being seventy-eight volumes from the library of the late Dr. C. W. Horner. There are fewer than two thousand volumes of general textbooks in the library, and from these there was a circulation of ten thousand six hundred and sixty-three volumes.

Yellow Fever in Cuba. — It is reported from Washington that yellow fever has appeared again in Cuba, after an immunity dating from the American occupation. Four cases are said to have been reported through the Marine Hospital Service, and along with this report comes information that the Cuban government has ceased to adhere to the strict rules of sanitation laid down by the Americans, and that cleanliness is no longer maintained.

Memorial to Mr. Cadge. — It has been arranged that the unveiling of the memorial window to the late Mr. Cadge, in Norwich Cathedral, England, shall take place on Tuesday, Dec. 6, at 3 P.M. The Dean of Norwich proposes to conduct a short service on the occasion. The President of the Royal College of Surgeons, Mr. Tweedy, has consented to unveil the memorial, and it is hoped that as many subscribers as possible will be present.

Restriction of Work of Pneumonia Commission. — It is reported, we trust incorrectly, that the Civil Service Commission of Greater New York has ruled that assistants in other cities may not be employed unless they first go to New York to undergo a local civil service examination. The idea of the commission was that the work of investigation might be very materially forwarded through the co-operation of physicians in other cities who should receive a small salary therefor. If the report is true, this important part of the work will be seriously interfered with, if not wholly prevented.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon Nov. 16, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 53, scarlatina 24, typhoid fever 19, measles 17, smallpox 0.

NEW YORK.

Annex for Tuberculosis at Post-Graduate Medical School. — Through the generosity of a friend of the institution, the New York Post-Graduate Medical School has been able to open an annex for the treatment of patients suffering from advanced tuberculosis who are unable to leave the city. A house in East 19th Street, in

the vicinity of the Post-Graduate, has been leased and fitted up for the desired purpose, and the anonymous donor has promised $6,000 per annum for its maintenance for a certain term of years. The special features of this tuberculosis hospital include a constant circulation of fresh air, which is filtered through absorbent cotton, and an approved "hyper-nutrition" regimen. The annex makes possible the constant intelligent supervision of a patient during the most critical stage of his disease, and he can thus remain an in-patient until he is sufficiently improved to become an out-patient of the Post-Graduate dispensary.

BEQUESTS. — Among the charitable bequests made in the will of the late Solomon Rothfield of New York are the following: $5,000 to the Mount Sinai Hospital, $2,000 to the Montefiore Home and Hospital for Chronic Invalids, $1,000 to the Beth Israel Hospital Association, and $500 to the Colored Home and Hospital.

MEETING OF DIRECTORS OF MONTEFIORE HOME. — The annual meeting of the directors of the Montefiore Home and Hospital for Chronic Invalids was held on Nov. 6. During the year there were treated at the parent institution 889 patients, at a cost of $283.98 each per annum. Of this number, all but 32 were free patients. Many needed improvements were added both to the home and to the country sanatorium for tuberculosis at Bedford, Westchester County, and $28,500 was expended in the erection of a new building adjoining the home, to be known as the Louis Gans Memorial.

NATIONAL ASSOCIATION FOR STUDY AND PREVENTION OF TUBERCULOSIS. — A meeting of the board of directors of the National Association for the Study and Prevention of Tuberculosis was held in New York on Nov. 16. Dr. William Osler of the Johns Hopkins University presided, and the plan of organization for the first annual meeting of the Association, to be held in Washington in May next, was discussed. It was decided to appoint an advisory committee of prominent physicians and laymen throughout the United States and to make an appeal for contributions to philanthropic people generally. The help of municipal bodies all over the country will also be sought.

FOOD PRESERVATIVES. — At a meeting of the New York Academy of Medicine, held Nov. 17, Dr. H. W. Wiley, Chief of the Bureau of Chemistry, United States Department of Agriculture, read a paper on "The Influence of Preservatives and Adulterants in Food on the Public Health," in which he gave the results of the experiments which have been made during the past three years under his direction at Washington. It was conceivable, he said, that there might be conditions in which the use of preservatives of a chemical nature was permissible, but he could see none in a country like America, where food is abundant and is procurable without difficulty in its fresh state. Persons who preferred the preserved foods should, of course, have the right to procure and consume them, but the sale of such to the general public to be eaten as fresh and wholesome food he thought was a direct fraud. On the second of January next an order, prepared by Dr. Wiley at the request of the Secretary of Agriculture, is to go into effect, which requires that all imported food products must show on the labels of the packages for the consumer just what preservatives, other than the accepted alimentaries, salt, sugar, vinegar and wood smoke, are used in their preparation.

Miscellany.

MORTALITY AMONG MEDICAL OFFICERS IN WAR.

ACCORDING to a Russian medical journal quoted in the *Journal of the Association of Military Surgeons of the United States* the rate of mortality during the Turco-Russian war was much larger among military surgeons than in the combatant branches of the army. The following statistics embody the results of a comparative study of the official records of former wars: During the campaign of 1813-15 there were 2,170 surgeons in the Prussian army, of whom about 10% were either killed or wounded, this proportion being about equal to that of casualties among combatants. In the French campaign against Constantine in 1837, while every thirteenth combatant officer was killed, every sixth surgeon died. This in proportion to the numbers shows that the mortality among surgeons (16⅔%) was more than double that of the combatant officers (7⅛%). During the Crimean war, according to French official statistics, the mortality among the surgeons was 18.2%, while that among the combatant officers was 7.3%. In the last Russian campaign 355 surgeons out of a total of 2,839 died, being 12½%. In the French-Mexican expedition the rate of mortality among the surgeons was about 20%, while that of the combatant officers was only about 4%. The only instance on record in which the proportion of deaths among combatant officers was larger than that of the medical officers, is said to have been in the Prussian army during the Franco-Prussian war, 1870-71. — *British Medical Journal.*

THE CAPE AS A HEALTH RESORT.

FOR many years South Africa has enjoyed, in common with Australia, New Zealand and Colorado, a high reputation as a health resort for patients suffering from pulmonary phthisis. Recent events, moreover, which have made South Africa appear for the time the land of promise, have directed the attention of many invalids to that country. Under the circumstances, it is important that physicians at home should be in a position to offer advice to their patients who may intend to emigrate, not merely on the subject of the choice of destination, but as to the necessary conditions of life and probable chance of employment. The most important point to be decided is whether a patient should be advised at all to go abroad. There is no doubt that in many cases a patient, in an advanced stage of phthisis, with cough, expectoration and pyrexia, will not lengthen his life one day by a change of climate. On the other hand, he merely suffers the misery of his last illness among strangers in a foreign land, away from all the comforts of home and friendship. Still, hope being what it is, one rarely likes to leave untried what may after all be a chance of recovery, and one can recall many cases of recovery even among the apparently hopeless. In going to South Africa, a patient, even in early stages of consumption, must be supplied with sufficient means to keep him for at least a year or two. Otherwise he will probably find his choice of employment limited, and he may be forced into work which will prove disastrous to his health. Great attention must be paid to the choice of residence, the altitude being the most important factor. In the low altitudes in Cape Colony, up to eight hundred feet, there is plentiful vegetation and much moisture, while in the high altitudes of the Great Karroo, two to five thousand feet, conditions are quite opposite. It may, however, be wiser for the physician at home to leave the decision of a suitable locality to a *confrere* at Cape Town, and indeed, a patient should always be warned to lose no time in placing himself under a competent physician on his arrival in a new country. — *Medical Press.*

RESOLUTIONS ON SAMUEL W. ABBOTT, M.D.

THE members of the Middlesex (East) Medical Society hereby express their sorrow at the death of their fellow member Dr. Samuel W. Abbott. For many years an active member of the Society, he lost no opportunity of being present at its meetings and contributing from his knowledge and experience.

While quiet and unassuming, he was of unusual ability. His advice was often sought and freely given to younger members of the profession, and his counsel esteemed by all.

We regret the loss of a good physician, a personal friend and a good man.

MIDDLESEX (EAST) MEDICAL SOCIETY,
C. W. HARLOW, M.D., *Secretary.*
NOVEMBER 16, 1904.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 12, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Meningitis.
New York . .	3,908,644	1,228	316	23.04	17.83	2.28	1.71	.90
Chicago . . .	2,021,086	413	110	26.61	13.80	3.14	2.42	—
Philadelphia	1,407,968	—	—	—	—	—	—	—
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	—	—	—	—	—	—	—
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	128	38	21.87	23.43	1.56	2.34	1.56
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	70	16	11.44	8.58	4.29	—	—
Boston . . .	617,950	194	43	21.65	14.95	2.58	.51	.51
Worcester . .	136,925	29	4	6.90	13.79	—	—	—
Fall River . .	119,349	36	13	44.44	16.67	2.78	—	—
Lowell . . .	104,402	23	8	30.43	13.04	4.35	4.35	—
Cambridge .	100,998	22	5	13.63	27.27	—	9.09	—
Lynn	73,875	19	3	15.80	—	—	5.26	—
Lawrence . .	72,348	19	6	5.26	26.31	—	—	—
Springfield .	72,020	26	2	7.69	3.85	7.69	—	—
Somerville .	70,413	17	1	17.64	11.76	5.88	—	5.88
New Bedford	68,868	31	11	19.35	16.13	—	3.26	—
Holyoke . . .	50,538	9	3	33.33	22.22	11.11	—	11.11
Brockton . .	46,801	10	2	20.00	—	—	—	—
Newton . . .	39,210	8	—	—	—	—	—	—
Haverhill . .	39,061	10	2	20.00	10.00	—	—	—
Malden . . .	37,205	6	1	33.33	—	—	—	—
Salem	37,188	9	3	—	11.11	—	—	—
Chelsea . . .	36,499	11	4	—	18.18	—	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	5	1	20.00	—	—	—	—
Everett . . .	30,209	9	3	—	—	—	—	—
North Adams	29,201	8	1	25.00	—	—	—	—
Quincy . . .	26,798	3	—	—	—	—	—	—
Gloucester .	26,121	4	—	—	—	—	—	—
Waltham . .	25,797	10	1	30.00	10.00	—	—	—
Brookline . .	25,576	—	—	—	—	—	—	—
Pittsfield . .	22,870	—	—	—	—	—	—	—
Medford . .	21,956	2	—	—	—	—	—	—
Chicopee . .	21,692	4	2	25.00	—	—	—	—
Northampton	20,314	8	0	—	—	—	—	—
Beverly . . .	15,807	4	—	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	0	—	—	—	—	—	—
Adams . . .	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	5	0	20.00	20.00	—	—	—
Newburyport	14,478	4	1	25.00	—	—	—	—
Woburn . . .	14,315	2	—	—	—	—	—	—
Melrose . . .	13,819	2	1	—	—	—	—	—
Westfield . .	13,809	3	1	33.33	—	—	—	33.33
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	3	0	33.33	—	—	—	—
Revere . . .	13,609	0	—	—	—	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody . .	13,406	—	—	—	—	—	—	—
Gardner . . .	12,324	2	1	50.00	50.00	—	—	—
Southbridge .	11,716	3	—	—	—	—	—	—
Watertown .	11,575	3	3	66.67	33.33	—	—	33.33
Weymouth .	11,350	3	0	33.33	—	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 2,405; under five years of age, 606; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 538; acute lung diseases 383, consumption 275, scarlet fever 11, whooping cough 9, cerebrospinal meningitis 19, small pox 4, erysipelas 1, puerperal fever 4, measles 12, typhoid fever 41, diarrheal diseases 106, diphtheria and croup 56.

From whooping cough, New York 3, Chicago 4, Pittsburg 2. From measles, New York 3, Chicago 3, Pittsburg 3, Boston 2, Haverhill 1. From scarlet fever, New York 8, Chicago 2, Pittsburg 1. From cerebrospinal meningitis, New York 11, Pittsburg 12, Boston, Somerville, Holyoke, Marlboro, Westfield and Watertown, 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Oct. 29, the death-rate was 15.0. Deaths reported 4,382; acute diseases of the respiratory organs (London) 145, whooping cough 31, diphtheria 54, measles 119, smallpox 3, scarlet fever 36.

The death-rate ranged from 6.4 in Hornsey to 21.5 in Merthyr Tydfil; London 14.7, West Ham 14.8, Brighton 16.1, Southampton 9.3, Plymouth 17.4, Bristol 13.2, Birmingham 15.9, Leicester 14.7, Nottingham 15.9, Birkenhead 18.2, Liverpool 20.3, Wigan 17.4, Bolton 16.6, Manchester 18.7, Salford 18.2, Halifax 15.0, Bradford 13.5, Leeds 16.2, Sheffield 13.0, Hull 17.7, Newcastle-on-Tyne 17.8, Cardiff 11.8, Rhondda 11.1, Hanley 19.6.

METEOROLOGICAL RECORD.

For the week ending November 12, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 6	29.71	36	42	29	73	65	69	N	N W	7	8	O.	O.	0
M. 7	29.70	38	44	32	56	64	60	W	W	15	14	F.	C.	0
T.. 8	29.86	40	47	32	58	46	51	W	N	13	7	F.	C.	0
W. 9	29.98	36	42	31	71	81	76	N	N	6	8	O.	C.	T.
T.. 10	30.16	38	47	30	74	62	68	N W	S W	8	8	O.	C.	0
F.. 11	30.02	34	39	30	70	72	71	N	W	9	5	O.	C.	0
S.. 12	29.82	40	52	28	64	56	60	S	W S W	12	12	C.	C.	0
☞	29.89		45	30			65							T.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING NOVEMBER 19, 1904.

H. B. FITTS, surgeon. Ordered to the "Buffalo."

E. G. PARKER, passed assistant surgeon. Detached from the "Buffalo," Nov. 26, and ordered to the Naval Station, Tutuila, Samoa, and also to additional duty on the "Adams," sailing from San Francisco, Cal., Dec. 1.

C. MCLARTY, pharmacist. Detached from the Navy Yard, Norfolk, Va., and ordered to the "Solace" temporarily, and thence to the Naval Hospital, Yokohama, Japan.

F. W. BROCK, pharmacist. Detached from the Naval Hospital, New York, N. Y., Nov. 25, and ordered to the Navy Yard, Norfolk, Va.

A. FARENHOLT, surgeon. Detached from the "Monterey" and ordered to the "Raleigh."

R. M. YOUNG, assistant surgeon. Detached from the "Oregon" and ordered home.

U. R. WEBB, assistant surgeon. Detached from the Naval Station, Cavite, P. I., and ordered home.

G. M. MAYERS, assistant surgeon. Detached from the "Raleigh" and ordered home.

W. S. HOEN, assistant surgeon. Detached from the Naval Station, Cavite, P. I., and ordered to the "Oregon."

J. R. DYKES, assistant surgeon. Detached from the "Rainbow" and ordered to the Naval Station, Cavite, P. I.

J. COWAN, pharmacist. Retired. Detached from the Naval Station, Port Royal, S. C., and ordered home.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—Meeting of the Surgical Section of the Suffolk District Medical Society, Wednesday evening, Nov. 30, at the Medical Library. Ptosis of the Abdominal Organs with Especial Reference to Ptosis of the Kidney: 1. The Importance of Keeping in Mind Ptosis of the Viscera in Considering the Treatment of the Kidney, Dr. M. P. Smithwick. 2. Experience with Treatment by Abdominal Supporters, Dr. W. H. Smith. 3. The Actual Results at the Massachusetts General Hospital following Operative Treatment, Drs. F. G. Balch and J. R. Torbert. 4. The Results at the Boston City Hospital, Drs. Paul Thorndike and J. B. Cunningham. Discussion: To be opened by Dr. H. D. Chadwick of Waltham: Followed by: Dr. J. W. Elliot, Dr. H. L. Burrell, Dr. A. T. Cabot, Dr. A. K. Stone, Dr. W. B. Conant.

E. A. CODMAN, M.D., *Secretary.*

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.—The seventeenth annual meeting of the Southern Surgical and Gynecological Association will be held at the Hotel Hillman, Birmingham, Ala., Dec. 13, 14 and 15, 1904.

D. W. HAGGARD, M.D., *Secretary.*

NEW YORK ORTHOPEDIC DISPENSARY AND HOSPITAL.—The trustees of the New York Orthopedic Dispensary and Hospital announce that the surgeon-in-chief, Dr. Russell A. Hibbs, will give a course of clinical lectures on Orthopedic Surgery at the Institution, on Tuesday and Thursday afternoons, at four o'clock, from Dec. 6 to Jan. 5 (both inclusive). The course will be free to the medical profession and students.

MUTTER LECTURE ON SURGICAL PATHOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The Mütter Lecture for 1904 will be delivered in the Hall of the College of Physicians, N. E., corner of 13th and Locust Streets, on Friday, Dec. 2, at 8.30 P.M., by Dr. George H. Monks, Assistant-Visiting Surgeon, Boston City Hospital; Lecturer on Surgery, Harvard Medical School. Subject: Studies in the Surgical Anatomy of the Small Intestine and its Mesentery. The Profession is cordially invited to be present.

JOHN H. BRINTON, M.D., *Chairman,*
GEORGE MCCLELLAN, M.D.,
J. ALISON SCOTT, M.D.,
Committee of the Mütter Museum.

RECENT DEATH.

HENRY E. ALLISON, M.D., of Matteawan, Dutchess County, N. Y., died on Nov. 12, in the fifty-third year of his age.

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheater of the Boston City Hospital on Nov. 25, from 10 A.M. until 12.30 P.M.: Amputation of leg; Appendectomy; Radical Cure, Inguinal Hernia; Radical Cure, Hydrocele; Dissection, glands of neck; Abdominal Tumor.

BOOKS AND PAMPHLETS RECEIVED.

A System of Practical Surgery. By Prof. E. von Bergmann, M.D., Prof. P. von Bruns, M.D., and Prof. J. von Mikulicz, M.D. Vol. V. Translated and edited by William T. Bull, M.D. and Edward Milton Foote, M.D. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1904.

Light Energy. Its Physics, Physiological Action and Therapeutic Applications. By Margaret A. Cleaves, M.D. Illustrated. New York: Rebman Company. 1904.

Refraction and How to Refract, including Sections on Optics, Retinoscopy, the Fitting of Spectacles and Eye-glasses, etc. By James Thorington, A.M., M.D. Third Edition. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

The Woman's Home Library. Edited by Margaret E. Sangster. Beauty through Hygiene. Common Sense Ways to Health for Girls. By Emma E. Walker, M.D. Illustrated. New York: A. S. Barnes & Co. 1904.

Department of the Interior. Bureau of Government Laboratories. Biological and Serum Laboratories. Report on Bacillus Violaceous Manilae: A Pathogenic Microörganism. By Paul G. Woolley, M.D. Manila. 1904.

Department of the Interior. Bureau of Government Laboratories. Serum Laboratory. Texas Fever in the Philippine Islands and the Far East. By James W. Jobling, M.D., and Paul G. Woolley, M.D. Biological Laboratory. Bulletin No. 2 of the Entomological Division. The Austrian Tick (Boophilus Australis Fuller) in the Philippine Islands. By Charles S. Banks, Entomologist. Manila. 1904.

Lectures to General Practitioners on the Diseases of the Stomach and Intestines. With an account of their relations to other diseases and of the most recent methods applicable to the diagnosis and treatment of them in general; also "The Gastro-Intestinal Clinic," in which all such diseases are separately considered. By Boardman Reed, M.D. Illustrated. New York: E. B. Treat & Co. 1904.

A Text-Book of Pathology. For Practitioners and Students. By Joseph McFarland, M.D. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

A Text-Book of Diseases of Women. By Charles B. Penrose, M.D., Ph.D. Illustrated. Fifth Edition, Revised. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Hand-Book of the Anatomy and Diseases of the Eye and Ear. For Students and Practitioners. By D. B. St. John Roosa, M.D., LL.D., and A. Edward Davis, A.M., M.D. Philadelphia: F. A. Davis Co. 1904.

Vibratory Stimulation. Its Physiologic Basis and Therapeutic Possibilities. By Samuel S. Wallian, A.M., M.D. Reprint.

Diet and Food Considered in Relation to Strength and Power of Endurance, Training and Athletics. By Alexander Haig, M.A., M.D. Oxon., F.R.C.P. Fifth Edition. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

Enlargement of the Prostate. Its Treatment and Radical Cure. By C. Mansell Moullin, M.D. Oxon., F.R.C.S. Third Edition. Philadelphia: P. Blakiston's Son & Co. 1904.

Annali dell' Instituto Maragliano per lo Studio e la Cura Della Tubercolosi e di Altre Malattie Infettive. Pubblicati sotto la direzione del Prof. E. Maragliano. N. 2, Settembre, 1904.

The Pathology of the Eye. By J. Herbert Parsons, B.S., D.Sc. (Lond.), F.R.C.S. (Eng.) Vol. I, Part 1. Illustrated. New York: G. P. Putnam's Sons. London: Hodder & Stoughton. 1904.

Original Articles.

ON CERTAIN UNAVOIDABLE CALAMITIES FOLLOWING SURGICAL OPERATIONS.*

BY MAURICE H. RICHARDSON, M.D., BOSTON.

I HAVE selected this subject, first, because I wish to hear what the experience of others has been in these distressing calamities, and if possible to get some help in trying to avoid them; and, furthermore, because the subject has been of extreme interest to me. I present these cases, too, for the benefit, and perhaps comfort of those who have not yet encountered such calamities, but to whom it is only a question of time when they will come.

Finally, it seems to me that we all should at times be reminded that surgery, brilliantly successful as it has become by the extraordinary advances of the past quarter century, is still attended by certain unavoidable risks, that disasters may occur in the cases which are apparently the simplest and safest; that they cannot with our present knowledge be predicted or provided against by even the most experienced surgeon; that when they do occur, they occur not as the result of ignorance or neglect, but, as my title describes them, as the *rare and unavoidable calamities of surgery*.

Of the conditions which may predispose to, the symptoms which may portend, the means which may prevent, and the course which may retrieve disaster, we have little or no knowledge; for these occurrences are exceedingly infrequent of illustration. The opportunities for investigation in the hands of any one man, or of any one hospital, are from the nature of things limited. The possibility of occurrences which I mention must, however, be borne in mind in advising surgical operations, especially in the abdomen; for disaster and even death may take place in the cases which are apparently the simplest.

So long as we are human, we must expect occasionally to meet with failure and disaster in the practice of surgery, and that in spite of every precaution. In the great majority of cases failures and disasters may be traced to some error of observation, of judgment, or of technique. In many instances, however, the most rigid review of the case will fail to show the error by avoiding which a similar disaster may be prevented. Disasters occurring as the results of causes which cannot be detected may be classed as unavoidable, and yet in a strict sense they properly are avoidable. Indeed, it would be difficult to imagine a combination of circumstances, however disastrous, which by an accurate foreknowledge could not be successfully provided against. The errors will sooner or later be discovered and corrected.

Let us consider, for example, suppression of urine after a hysterectomy, when that operation has been decided upon after careful observation of heart, lungs and kidneys. Even if everything favors operation, it is not unheard of for patients to have complete and fatal suppression of urine. Such a calamity is exceedingly rare, it is true; yet it undoubtedly does occur. If ether has been used for anesthesia, it is common to say that ether caused the suppression, and that if chloroform had been used no renal changes would have followed, and therefore no suppression. I do not believe that ether alone is often responsible for urinary suppression, if, indeed, it ever is; and yet ether is usually said to be the cause of this accident. Assuming that ether is responsible, we may say that chloroform would not, on the chances, have caused death from suppression, and that the disaster was therefore avoidable. But if chloroform had been used, the patient would have run even greater risk from the lethal effects of chloroform itself. In the case in point, there being no way of determining beforehand the patient's idiosyncrasies, suppression of urine in such cases may be regarded as an unavoidable calamity.

The disaster of infection of the knee-joint, general septicemia and death, following arthrotomy, is clearly owing to an infection from without; and infections from without are, in a strict sense, avoidable. But are infections of wounds always avoidable by any human agency? Can we always determine just that lapse of strictest watchfulness and foresight by which the joint received its bacterial contamination? We all know that we cannot, and that infection will occur at an operation which has been provided for by every care, even as to the minutest detail. In the strictest sense, perhaps, such infections are avoidable; in the practical, every-day construction of the word, they are unavoidable. The operation may have been performed upon a dusty day, and particles of germ-laden dust may have drifted into the wound; the skin incision may have infected the knife, and that the joint; the patient's phagocytic powers may have been feeble, in a word, the joint may have been infected in any one of a thousand ways, all of which, theoretically avoidable, are unavoidable by human foresight. Nevertheless, an infection is lightly condemned by some as in itself conclusive evidence of blundering or carelessness. A certain percentage of infections must be regarded as unavoidable, no matter how confident in the perfection of his technique the surgeon may be.

Then there is the disaster of post-operative hemorrhage — one of the most formidable and distressing calamities of surgery; who can predict when it will occur? Who can by taking thought always avoid it? And yet the disaster of hemorrhage should rightly be regarded as among the most easily prevented of all post-operative disasters. Who could predict, much less prevent, a hemorrhage from the vessels of the lesser curvature of the stomach following a cholecystostomy for jaundice? Such a disaster occurred, after simple tube drainage through the gall-bladder, in the case of a strong man of fifty-seven years who had been jaundiced for two

* Read before the American Surgical Association, June 14-17, 1904.

or three months. Hemorrhage was, of course, feared, and every provision possible was made for it. The blood coagulation time was brief; there was no hemorrhage at the operation. On the third or fourth day after operation, however, oozing from the wound began, and continued in spite of all that could be done. Secondary operation seemed successful, though no source of the bleeding could be found. Autopsy showed that the blood came from a vessel of the stomach at the lesser curvature, far from the operative field. Death was welcome in this case, however, for the cause of jaundice was cancer of the pancreas.

Who, by experience, forethought, aseptic technique, and operative skill, can make sure that in no case of hydrocele, varicocele, or hernia, either from hemorrhage or from infection, will the integrity of the testicle be threatened? These accidents, too, are in a strict sense avoidable; but is it not too much to expect of human frailty that they can in every instance be actually prevented? I have no doubt that the surgery of the future, no matter how perfect it may become, will always be attended by such disasters as I have mentioned.

It is not, however, to consider technical errors, slipping of ligatures, infection of joints, sloughing of testes, or errors of carelessness and of observation, all practically or theoretically avoidable, that this communication is presented, but rather to consider a certain class of accidents which are not even theoretically avoidable. Chief among these are changes in the blood which result in venous thrombosis and in death from pulmonary embolism.

Phlebitis following abdominal operations is not uncommon, and it is an accident which, as far as my observation goes, is practically unavoidable. Indeed, I believe that it is theoretically unavoidable. Perfect healing by first intention, without evidence of sepsis in pulse, in temperature, or in blood, by no means insures the patient against phlebitis. The clinical picture of post-operative phlebitis is, unfortunately, only too familiar to the experienced surgeon. There is, in the great majority of cases, every appearance of aseptic wound healing; there is no local infection, there is no constitutional disturbance. Indeed, the signs of phlebitis do not usually appear until the patient is ready to leave her bed. Then we have the painful and tender veins, with slight rise of temperature and pulse. The only evidence of bacterial infection lies in these trivial disturbances. It is at once assumed by some that there has been a wound infection, transmitted to the veins of the limbs through the venous plexuses of the pelvis. Doubtless, the thrombosis which affects the left lower extremity may be traced to the seat of operation, though it is hard to see how a right-sided operation like appendectomy should be followed by a thrombosis of the veins of the left calf. This thrombosis may be the result of wound infection, but such an explanation seems to me against common sense and experience. The chief point is, however, that it is unavoidable, either theoretically or practically.

In my experience phlebitis is more common after extensive dissections in the female pelvis, especially in patients who have for a long time been bleeding from the uterus, than it is in any other class of cases. It is frequently a disease of exsanguination, of thin, watery blood. Phlebitis is, therefore, more common after operations upon the fibroid uterus, whether myomectomy or hysterectomy, in patients who have been bleeding. The proportion of cases is not large, but it is large enough to be regarded as a serious evil effect of operative treatment. Phlebitis occurs most frequently in those patients whose wounds have pursued a uniformly favorable and aseptic course.

Sometimes I have thought that venous thrombosis is the result of enforced quiet, that the patient would have had the complication if she had been put on her back and kept perfectly still for four weeks without operation. I have, therefore, required my patients to keep their legs moving freely, at no time to keep them perfectly still.

The occurrence of phlebitis after operations upon the uterus or upon the ovaries, suggests the extension of simple clotting from the uterine or ovarian plexuses of veins into the iliac vessels. Phlebitis rarely occurs after any other abdominal operation. I have seen but one case of phlebitis after a simple appendectomy;[1] none after a gall-stone operation; none after such an operation as ventral fixation. I have never seen a septic thrombosis in the course of any ordinary phlebitis, though in cases originally septic I have seen a few instances of pylephlebitis and multiple abscesses of the liver.

The common phlebitis is, I believe, aseptic in its origin and in its course. It can never be predicted and it can never be avoided. If this disease has a septic origin, the sepsis is of the mildest form, and too trivial ever to cause signs of local wound infection.

Phlebitis, when definitely developed, does not seem likely to cause pulmonary embolism. It is the sudden detachment of the unsuspected thrombus which causes the disaster. I have never seen an embolus from this source, except perhaps once many years ago, when, as interne, just prior to proposed amputation of the leg, I saw, in a case of long-saphenous phlebitis, a thrombus forced from its bed into the venous current by an Esmarch bandage. The clot lodged in the pulmonary artery, and caused instant death.

The ordinary phlebitis, of which I have seen many examples, is, I am convinced, the origin of pulmonary embolism in an extremely small percentage of cases. If a thrombus forms in a vein as the very first step in the process of phlebitis the detachment of that clot and plugging of the pulmonary artery takes place before the patient shows any local or constitutional signs of phlebitis. As I have already said, the detachment of a clot after the veins have become tender and after the development of slight constitutional symptoms, is of such rarity, that I can at this time recall no cases of embolism. When embolism does take place in phlebitis, that embolism is of the multiple

[1] S. H. R., vol. xxx, p. 96.

form, and that phlebitis of the septic suppurating variety. The small and septic thrombi which become the foci of multiple infarcts in the lungs and elsewhere are a sequel of a form of phlebitis quite different from that under discussion. There is in such cases incontrovertible evidence of both local and constitutional sepsis. The clinical sequence is not easy to determine between two local areas of sepsis — the primary phlebitis and the secondary infarct — between, for example, a presumable sepsis in the uterine sinuses after myomectomy and a fatal septic meningitis.

Recently I lost a patient [2] a strong woman, aged thirty years, after a myomectomy for multiple fibroids. The operation was uncomplicated. There was much oozing, which required many ligatures. A long series of uninterrupted recoveries had led me to look upon myomectomy as an operation safer in practice than in theory. The patient died in two weeks of a septic meningitis. There were no signs of sepsis in the abdomen, but there was unusually marked constitutional disturbance. Whether in the uterine sepsis, if it really existed, there was a thrombo-phlebitis to which the meningeal disease was secondary, it is impossible to say; for there was no autopsy. But even if no direct connection between the two lesions could have been made out, common sense would indicate that the fatal meningitis was in some way secondary to the myomectomy. A septic uterus after myomectomy is, of course, beyond the scope of the unavoidable calamity and the scope of this paper.

Thrombosis with detachment of clot and pulmonary embolism is a distinct feature of venous complications, and a disaster of such magnitude that it has seemed to me worthy of being considered the chief subject of this paper. But is thrombosis of veins, detachment of clot, and pulmonary embolism *prima facie* proof of a phlebitis? I do not feel convinced that it is. Phlebitis and pulmonary embolism may have a common origin. Clinically, however, the latter takes place before there is even a suspicion of the former. Detachment of clot and plugging of the pulmonary artery precede any symptoms of ordinary phlebitis, and the patient of course does not survive for the demonstration of the latter condition. Patients who die suddenly during an aseptic and satisfactory convalescence after abdominal operations, especially the pelvic, may be assumed, in the absence of an autopsy, to have died of a sudden plugging of the pulmonary artery by a thrombus; for in by far the greater number of cases autopsy has shown this mechanical condition. A careful review of such cases in my experience has shown this cause invariably present.

Sudden death after a serious abdominal operation may be ascribed, then, in almost every case, to pulmonary embolism. No signs, either local or constitutional, precede this accident. The patient is seized with precordial distress, oppression and suffocation, gasps for breath and dies. Sometimes there is a slight attack, followed soon after by a severe and fatal one. At the autopsy a clot is found plugging the pulmonary artery, and often there is no evidence as to the source of the clot. A patient rapidly convalescing dies instantly, and the house of rejoicing is turned into a house of mourning.

In my own experience this accident has taken place only in pelvic and abdominal cases. At the Massachusetts General Hospital I have known a death from this cause to follow an extensive operation for breast cancer. The occurrence is not infrequent in the medical wards.

Pulmonary embolism usually occurs after abdominal operations during which large uterine sinuses are laid wide open. The number and size of these sinuses are often extraordinary. I have found the uterine artery itself, greatly enlarged, concealed in a mass of veins the size of the wrist, each vein a quarter of an inch or more in diameter. The closure of these veins is sometimes by ligature and sometimes by spontaneous blood coagulation. When the uterine artery is isolated and tied, hemorrhage from the veins ceases spontaneously. As there is no afferent supply, there is no efferent flow, especially if the actual cautery is used in cutting through the pedicle and the cervix. In all cases these sinuses are closed either by suture or by spontaneous blood-clotting after ligation of the uterine arteries (which I usually isolate and tie separately in order to avoid the ureters). The clotting of blood varies in different cases. I am inclined to think that the woman who by long-continued uterine hemorrhage has become markedly exsanguinated is the one in whom coagulation may be most rapid, but in whom the coagula are most easily detached. Her life has perhaps been preserved during her long illness by this tendency of bleeding sinuses to close themselves. Be that as it may, the patient who is anemic and yellow at the time of operation is the one in whom I am led to fear pulmonary embolism.

Is pulmonary embolism avoidable? Can the likelihood of its occurrence be predicted? Has it a definite relation to phlebitis?

In my experience pulmonary embolism may occur after the most successful operation and during a perfectly satisfactory convalescence. There is no way of predicting it, and there is no known predisposition to it. The possibility of its occurrence must be remembered, especially when operations not actually imperative are under consideration.

The following cases illustrate some of the conditions under which sudden death has taken place after my operations for abdominal diseases:

Case I. George E. S.,[3] aged twenty-two years, living in Fall River, patient of Dr. W. T. Learned, after a week's illness, was operated upon for appendix abscess on April 28, 1894. The operation consisted of a deliberate and careful dissection down to the cecum, behind which was found thin, fecal pus. The main cavity of the abdomen was not opened.

While convalescing extremely well, this young man, during the second week, suddenly died. Autopsy

[2] O. R., vol., xlix, p. 97.

[3] S. H. R., vol. xxxiii, p. 55.

showed the pulmonary artery completely plugged. There had been no suspicion of phlebitis.

CASE II. Mrs. Ella C.,[4] aged fifty years, patient of Dr. J. M. Crocker of Cambridge, I saw on Nov. 22, 1899. This patient had come to Dr. Crocker two years before complaining of metrorrhagia. I found a fibroid the size of a cocoanut, tender and pressing on the bladder. Hysterectomy was advised. The uterus containing a fibroid about the size of an orange was amputated above the cervix with the actual cautery.

The patient rallied from the operation, and everything went well until the afternoon of the fourth day, when she suddenly gasped for air, and died before either nurse or physician could reach her.

The autopsy was performed by Dr. Swan twenty-four hours after death. An extensive thrombosis of the superior cava was found, with plugging of the pulmonary artery. It was hard to tell where the thrombi began. They were very extensive, and from their character there was no doubt that they had formed before death.

CASE III. Laura C.,[5] aged forty years, colored, I saw at the State Hospital in Tewksbury on March 17, 1897. In this case there was a history of a uterine fibroid since 1895. This patient was mildly demented. She made a good recovery from the operation — an abdominal hysterectomy — but four weeks later died suddenly while trying on an abdominal supporter. Dr. Whitney reported that the growth was fibromyoma of the uterus.

Autopsy was made by Dr. M. W. Richardson, who reported as follows:

"Brain shows considerable injection of vessels of pia. Otherwise nothing abnormal noted. Seat of operation apparently in first-rate condition. Kidney normal in shape and size. Capsule peels off fairly easily. Microscopically, kidney, though somewhat old for satisfactory examination, shows a considerable increase in interstitial tissue between tubercles, and also thickening of capsules of glomeruli. Otherwise nothing abnormal noted. A moderate chronic interstitial nephritis."

This death was supposed to have been caused by pulmonary embolism, though none was observed post-mortem. The death was soon enough after operation to make reasonable some direct connection between them. If not *post hoc ergo propter hoc*, yet it would be hard to convince one that the death was not in fact the result of the operation. I include this case in the list of unavoidable fatalities, though I admit that there is no direct pathological connection between the operation and the death. In this case the line of suture was perfect; there was not even an adhesion: no operation ever went more smoothly, and yet the patient was not free from danger up to the time of fitting an abdominal supporter preparatory to walking about.

CASE IV. Mrs. Maria R. S.,[6] aged thirty-four years, of Wales, Mass., thin, pale and sickly, had a right-sided tumor, fluctuant and closely attached to uterus. On Dec. 20, 1902, at the Brockton Hospital I removed a dermoid cyst with twisted pedicle. The patient died of pulmonary embolism on Dec. 30, 1902.

In this case there was more than the usual non-adherent aseptic cyst; changes had taken place which made the operation extremely difficult and the prognosis grave. The patient did well, nevertheless, for ten days, when she died instantly, without any premonitory symptoms. (Autopsy showed a plugging of the pulmonary artery.)

CASE V. Another case, not abdominal but pelvic, was that of a woman in middle life, a patient of Dr. Henry W. Boutwell of Manchester, N. H. There was marked exsanguination, owing to a submucous fibroid, in reality a pediculated uterine polyp, removal of which did not take ten seconds. There was no hemorrhage from the pedicle. Within a few hours of the operation the patient died instantly from the lodgment of a thrombus in the pulmonary artery.

CASE VI. A final case was that of a man exsanguinated by bleeding piles, for which a clamp-and-cautery operation was performed. Within twenty-four hours of the operation this man suddenly died, without premonitory symptoms.

In these last two cases the nidus of the thrombus was undoubtedly in the venous plexuses of the pelvis. Both patients were yellow from loss of blood; and, as I believe, peculiarly liable to venous stasis and blood coagulation. I am convinced that in such cases there is from this cause danger enough of serious disaster to be taken into consideration. In cases of this kind, however, operation is imperative, whatever the dangers, and when the blow does fall, it is softened by the fact that the family and friends have been warned of its possibility.

In none of these cases had there been any pain in the legs, or any evidence whatever of phlebitis. There had been no disquieting symptoms of any kind, in fact.

Suppression of urine as a sequel of surgical operations is not especially infrequent. In many cases the suppression may be reasonably predicted; in the rarest instances it occurs unexpectedly, after demonstration of the sufficiency of the kidneys. In some cases it has occurred after operations the performance of which was absolutely essential to the preservation of life, in spite of known renal disabilities — the condition of the kidneys was unfortunate, but the risk of suppression had to be run.

In other cases, happily infrequent, suppression has followed operations of convenience or of comfort, so to speak, operations for the relief of conditions threatening neither life nor — seriously — health. The suppression of urine following myomectomy or hysterectomy for fibroids which do not seriously offend belong to this class. I do not advise the removal of small, non-offending fibroids, however, unless the indications are plain or the diagnosis is doubtful; and even then only when the other organs are perfect.

Suppression of the urine after trivial operation, when the kidneys are found at autopsy to be seriously diseased, is a deplorable calamity; but an avoidable one. Such a calamity cannot occur if routine examinations of the urine are made. My experience has never included a urinary suppression after a trivial operation. I have, however, had one case of suppression of urine and death after a hysterectomy which would not have been performed had the urine been examined.[7]

[4] S. H. R., vol. xlix, p. 45.
[5] S. H. R., vol. xxxvii, p. 38.
[6] O. R., vol. xlii, p. 7.
[7] S. H. R., vol. li, p. 65.

By a mischance the diseased condition of the kidney had not been discovered, the physician understanding that the surgeon had examined the urine; the surgeon, that the physician had examined it; and both thinking that it was normal.

These cases do not belong in the category of unavoidable calamities; for suppression of urine is, in the great majority of cases, avoidable if operations are not performed upon patients with diseased kidneys. Careful observation of the amount of urine passed in twenty-four hours, the quantity of urea, the presence of albumin and sugar, the detection of casts and other renal elements, will enable the surgeon to avoid these calamities in connection with operations of comfort, convenience and looks, rather than of necessity. As far as my own experience goes, suppression of urine has occurred but once when the kidneys were perfectly healthy. Suppression is, therefore, *prima facie* evidence of renal disease or renal insufficiency.

The limitation of urinary suppression to pelvic abdominal surgery may, as already stated, suggest that in some cases of suppression I may have tied, or in some other way occluded, the ureters. The only operation which can seriously threaten one or both ureters is that of hysterectomy, with the possible exception of removal of a cyst or other tumor deeply placed in the broad ligaments. I have carefully excluded from consideration those cases in which the suppression of urine was immediate and permanent. Such a form of suppression is the only one which can possibly suggest occlusion of the ureters, and such a form I have never had the misfortune personally to encounter. Indeed, when the operation is necessarily in close contact with the ureters, a careful, deliberate dissection which exposes the ureters as an early and indispensable step in the process makes sure that the ureters can neither be tied nor cut without the surgeon's full knowledge of the fact. Rapid blind mass ligation deep in the layers of the broad ligament, followed immediately by total cessation of urinary flow, is in itself proof that both ureters have been occluded. If care is exercised, however, such a disaster is, of course, as unlikely to occur as are injuries of the pneumogastric, phrenic, or recurrent laryngeal nerves in dissections of the neck.

Of all post-operative disasters the most distressing and deplorable is hemorrhage. It has been only after operations upon the gall-bladder, in my experience, that uncontrollable capillary oozing has occurred. The result in cases of hemorrhage following operation upon the biliary tract has been in my cases so fatal that the discovery of blood staining the dressing some days after operation cannot but cause the gravest fears. I have had four deaths from uncontrollable hemorrhage after operations upon the biliary tract. In three cases there was jaundice; in the fourth a biliary fistula had existed for a year. In the case of biliary fistula a stone impacted in the common duct diverted the entire biliary stream through the gall-bladder and out of the original wound — the wound of an operation for acute cholecystitis. There was consequently no bile either in the intestine or in the blood. During the operation, the field, dry in the beginning, began to ooze from every capillary; and the hemorrhage could be controlled neither by ligation nor by gauze pressure. The predisposition to hemorrhage in this case could not have been owing to bile in the blood; it must have been owing to absence of bile in the processes of nutrition.

Fatal capillary hemorrhage may be regarded as avoidable in jaundiced patients only when operation is avoidable. When in jaundice life can be preserved only by the removal of the cause, usually a stone impacted in the common duct, operation must be performed, in spite of the well known danger of hemorrhage. Under these circumstances death from hemorrhage may be regarded as an unavoidable calamity. A fatal hemorrhage in surgery, even when before operation predicted as possible, during the operation observed as constitutional, after operation found to be uncontrollable, and post-mortem demonstrated to be unavoidable, — a fatal hemorrhage, even under these circumstances, is the most distressing calamity of them all.

Can post-operative capillary hemorrhage in jaundiced patients be prevented by treatment before operation and the calamity thus be made avoidable?

In jaundiced patients I always use, for some time before operation, internal treatment, especially if the blood-coagulation time has not been satisfactory. The treatment consists in the use of ox gall, fruit acids, and sometimes calcium chloride. Whether this treatment has any real preventive effect seems extremely doubtful. When I have feared hemorrhage the most, there has been none; when I have feared it the least, it has occurred. I should still use preliminary internal medication in jaundice, however doubtful the efficacy of the treatment.

While hemorrhage has been going on, I have used in vain gelatine and calcium chloride.

In some cases of gall-bladder surgery not included in the class of unavoidable disasters, the hemorrhage has been from the friable vascular masses of malignant disease. Though these hemorrhages are perhaps unavoidable, they are to be expected; and the fatal termination cannot be regarded as a calamity wholly to be deplored.

Hemophilia is uncontrollable, but so unusual that I need hardly consider it in connection with this subject. I have never seen a case of hemorrhage from this cause. In one case, a case of nephrectomy for cancer in a woman, a history of hemophilia had served to postpone operation to a time very unfavorable for permanent cure. When I first saw the patient, operation was imperative, in spite of the history. The kidney was removed without loss of blood; but the patient, herself a physician, had managed with a story of hemophilia to postpone her operation, as it proved beyond the possibility of permanent cure, though she lived for a year or more after the operation.

The last group to be considered includes those

cases of death after operation in which no adequate cause can be found. I can offer no explanation for them.

An illustrative example recently occurred at the Massachusetts General Hospital. A woman, aged thirty-five years, was operated upon by me for an ovarian tumor. The operation was difficult and prolonged, as the tumor was deeply sessile and adherent. The patient died in three or four days with distention, obstipation, vomiting, high temperature, and high pulse. She, therefore, presented a typical picture of peritonitis. I had no doubt whatever that the cause of death was an extensive peritoneal infection. The autopsy showed, however, no signs of infection and no cause for death; no micro-organisms were found in the peritoneal cavity, and all cultures were sterile.

I had seen similar cases before. The only explanation which seems probable is that this was indeed a case of infection, but that the bacterium was one which escapes detection by our present methods of research; that it was one which fails to grow upon ordinary media; and that possibly the infection was one which fails to give the usual physical signs in the peritoneum. The death could not have been the result of any ordinary overwhelming infection, for there was sufficient time before death for the development of gross and microscopic evidence of a bacterial cause.

These considerations lead us, however, into realms of conjecture in which one guess is as good as another. The deplorable fact is that deaths occur in these cases. It is but a slight consolation to be told that there is no infection; for if there is no infection, how can we in future provide against the main and distressing fact — the death of the patient? Perfection of asepsis is of little moment if the patient dies.

Cases like the ones mentioned in this paper are fortunately unusual. Were they common, the surgeon's burden would be indeed too great to bear. The few cases with which I have illustrated this subject have been distributed over a period of fifteen years, and among some five thousand abdominal operations.

Can these disasters be foreseen and prevented? The answer must be, I think, in the negative. It seems unlikely that this small fraction of danger will ever be eliminated from surgical cases — the hazard of surgical operation must always include such risks as pulmonary embolism, suppression of urine, capillary hemorrhage, and inexplicable and fatal peritoneal symptoms.

PULMONARY TUBERCULOSIS AND SANATORIUM TREATMENT.*

BY VINCENT Y. BOWDITCH, M.D., BOSTON.

A FEW years ago I had the honor of giving you the results of my knowledge of the sanatorium treatment of tuberculosis at the Sharon Sanatorium, and now it is again my pleasure to address you with the hope that the results of a larger experience may be of service to you and hence to the cause for which we are all striving.

Since I last spoke before you, an astonishing change has come over the community in regard to the whole question of tuberculosis, not only among the profession but among the laity as well. Marked apathy has changed to extraordinary zeal, and, as is often the case, those who have been among the first to advocate certain measures which they know to be of great use, find themselves not infrequently obliged to take a rather conservative position lest the often extravagant claims made by recent converts shall only result in a reaction of sentiment in the community and a consequent unreasonable prejudice against methods of treatment which, beyond the shadow of a doubt in the minds of those who are best able to judge, are of infinite value, when rationally used, to thousands of sufferers.

In this somewhat conservative position I find myself to-day, and while not abating one iota in my enthusiasm for sanatorium treatment in properly selected cases of tuberculosis, yet I wish to sound a note of warning against what I know to be extravagant claims for "open air treatment," made often by those who have only superficially studied the subject.

While warmly acknowledging what we owe to the press, and while not wishing to underrate its value in promulgating the ideas which are essential for the proper use of these methods, yet the flaring and exaggerated statements which often appear in our daily papers of what has been accomplished at such institutions as the state sanatorium at Rutland and that at Sharon have often been such as to make "the judicious grieve." Exaggerations of true facts only serve to weaken the cause in the end, for the misguided individuals who rush for aid in the hope of healing a far-advanced process only meet with disappointment in the majority of cases. In their bitterness they and often their friends denounce the whole system as a fraud simply because they have been misled by the false statements of those who are not in authority, and in spite of the vain explanations of those in charge of the institutions. Our own profession also is often to blame, I regret to say, in this particular. Greater caution than now should be used in speaking of a "cure" before a number of months have passed during which time the patient has remained well under ordinary conditions of life after he has left a sanatorium. I feel that I cannot emphasize this point too strongly, for the often careless method of speaking of cases as "cures" when, after a stay of a few weeks, possibly months, the patients have the appearance of health only, is on the face of it, with our knowledge of the disease, absurd, and is apt to bring discredit later upon those who do their utmost to correct these false impressions. For myself, I can state that, recognizing the treacherous nature of the disease and wishing not to make extravagant claims, I have never in my fourteen years of experience of sanatorium treat-

* Read before the Worcester District Medical Society at a meeting to discuss the question of "Pulmonary Tuberculosis," Oct. 12, 1904.

ment used the word "cured" when a patient has been discharged from either institution, no matter how well he has appeared. I have adhered to the term "arrested" only, for those cases in which abnormal symptoms have ceased. The subsequent history has often justified the more favorable term, but up to the present I have followed the same method, although I think I stand alone on this point at present.

In our report at Rutland it will now be noticed that the terms "apparently cured" and "arrested" are used together. This has been done in deference to my colleague, Dr. Clapp, who makes use of the former term, and for the sake of greater uniformity in the report. In reality the two forms are supposed to represent about the same condition, and are meant to express at least an arrest of the disease which may or may not be permanent, and to prove which the test of time must be applied. In spite of these precautions, statements to the effect that patients are discharged "cured" are continually put into our mouths by ex-patients and their friends, to the detriment, naturally, of the methods used when relapses have occurred.

In regard to the class of cases which are admitted both at Sharon and Rutland, there exists a very mistaken idea even among the profession. As our circulars announcing the wish of the trustees of the sanatorium at Rutland state that only incipient cases or at least only those susceptible of improvement should be admitted, it is a very common idea that most of our cases have really few if any symptoms of active disease. This is the exact reverse of the truth, the fact being that really incipient cases form but a very small percentage of those treated in the sanatoria I mention, the majority having well-marked symptoms, many having advanced signs of disease in the chest. This being the fact, then, it speaks all the better for sanatorium treatment that we are able to accomplish as much as our statistics show. When we state, as we are able to in recent years, that about 50% of *all* cases admitted have left with the disease "arrested," we are massing our incipient and advanced cases together. When we show that among the cases which seem to be really incipient, between 70% and 80% leave with the disease arrested, it is only a proof of the importance of what we are constantly endeavoring to teach, *viz.:* not to wait until symptoms are well-marked but to send the patients at once when the first symptoms appear. Until the profession learns this, we are wasting valuable time. In spite of continued requests and statements to the contrary, however, patients are recommended by physicians to both institutions far beyond the incipient stage of tuberculosis. At Rutland we have been forced by the state authorities to enlarge the institution at the risk of making our work much less efficacious because, in order to fill the beds, it necessitates the admission of many far-advanced cases for which there is practically no hope of permanently arresting the disease even when a certain amount of benefit can be obtained. In speaking for myself, I know that I speak for others who are engaged in this special line of work, both at Rutland and elsewhere, when I say that in order to counteract this tendency and so to accomplish the best results we must have a clearer idea than at present exists among our own profession as to what constitutes a really "incipient" case for which there is a great hope of permanent arrest of disease.

I mention these details, not in any spirit of fault-finding, and with full knowledge of how useless it is to attempt to continually refute false statements. I simply wish to bring before you the difficulties which beset us in our work in our endeavor to be just in our claims, and to tell you wherein the profession can aid the work. It is my desire, moreover, to let my experience stand for what it is worth to help others to judge better, if possible, what can and what cannot be done by sanatorium treatment for sufferers from tuberculosis.

Just here it may be well for me to state what my belief is in regard to the comparative merits of sanatorium treatment near our homes and the so-called "climatic treatment," about which so much has been written and such hot discussions *pro* and *con* have arisen by the advocates of either method. From the outset, in urging the establishment of sanatoria for the treatment of suitable cases in favorable localities, not far from our great cities, I have always believed that for the *majority* of cases a climate in which the maximum of weather suitable for being out of doors could be obtained is the best for a tuberculous patient, other things being equal, that is, the ability to have good food and comfortable living, which are essentials. The mental attitude of the patient also should have great weight in making any decision. I still believe that properly regulated sanatoria in such localities can obtain better results than in less favorable climates; but for the hundreds and thousands who cannot avail themselves of such changes, these institutions near home are of infinite value, to say nothing of what is of even greater importance, their educational value to the community at large upon matters of hygiene. That many patients undoubtedly do better in suitable situations in their native climate than in those to which they are unaccustomed is perfectly true, as we have had many instances to prove; but I differ entirely with those who take the position that it is no longer necessary for any one to leave home, that he can be cured as well at or near home as by going away. Such conclusions are to me far too sweeping. In this as in every other disease the individual must be studied by himself and not as one of a class to be treated all alike. To attempt to prove, moreover, as has been done occasionally, that patients can improve as well at their homes in the impure air of cities as in the purer air of the country by the so-called "fresh-air treatment," seems to me the height of absurdity.

With this somewhat lengthy preamble, let me now briefly state what our reports at Sharon and Rutland have shown in recent years.

To quote from the Annual Report of the Sharon

Sanatorium, March 1, 1904: During the year 54+ % of all cases of tubercular disease were discharged with the disease "arrested." Thirty-one minus per cent were discharged as improved, some of these just falling short of total arrest of disease. Nine per cent were not improved. Five minus per cent of doubtful cases which for one reason and another did not give positive proof of the presence of tubercular disease although showing very suspicious signs, were discharged "apparently well," and were not included among the tubercular cases.

In the last Annual Report (1903) of the State Sanatorium at Rutland the following figures appear: During the year, forty-eight and nine tenths per cent of all cases admitted were discharged as " arrested " and " apparently cured," the two services of the hospital being thus classed together as previously stated. Forty-three plus per cent were discharged as " improved," which includes all shades of improvement from great to slight. Seven and nine-tenths per cent were discharged " not improved."

A slight difference between the percentage of arrested cases at Sharon and Rutland will be noted, the balance being rather in favor of the smaller institution, which is also intended for people of limited means only, and although it would be idle to draw conclusions upon such a slight basis, the fact is of interest in one or two particulars.

In the first place it would be reasonable to suppose that the somewhat closer supervision of the patients possible in a small institution would militate in its favor. Another point, however, is of special interest in that it confutes the rather loose statement which I heard uttered by a practitioner not long ago that no sanatorium should ever be placed below 1,000 feet altitude. As a matter of fact the Sharon Sanatorium stands at an altitude of about 250 feet only, and is only about 12 miles in a direct line from the sea. The Rutland Sanatorium stands at an altitude of about 1,100 feet, and is 50 miles from the sea. It is my own belief that given certain favorable qualities of situation, such as a porous soil, shelter from harsh winds, and a good water supply, the difference of a few hundred feet has little effect one way or the other upon the patients. When we come into the thousands, it is a different matter, for physiological changes then take place which may work for good or ill.

I come now to the last point of my paper, *viz.:* the subsequent histories of patients who have been discharged from sanatoria as arrested cases. It is still a little early, of course, in the history of our great state sanatorium, to tabulate for satisfactory data all the cases that have left the institution with the disease in a state of arrest, although we have hundreds who, after the lapse of four or five years, continue to show the great benefit, to say the least, which they have obtained there.

At the Sharon Sanatorium, however, which is now in its fourteenth year, I have been able to show satisfactory data to prove the lasting effects of the " fresh air treatment " with all that this embodies and as practised at that institution.

Last year I read before the American Climatological Association a paper entitled " Subsequent Histories of Seventy-nine Arrested Cases Treated at the Sharon Sanatorium from 1891 to 1902, Inclusive."[1] Of these cases 15% had died; the others who had left anywhere from one to eleven years before, at time of writing were in excellent health apparently, many of them engaged in active work. In looking up the causes of death in the 15% who had succumbed, another interesting fact came to light, *viz.:* that one died from another cause, after an operation an examination of the lungs having been made by an eminent physician just before and no evidence of disease found in the lungs; the others had either been advanced cases in which an arrest of disease had come unexpectedly, or where this was not the case the patients had returned to unhygienic surroundings and employments against advice, with fatal result after varying intervals of time. It should be stated, moreover, that several cases who were discharged as " much improved " had later regained their health by following out sanatorium methods.

Thus, gentlemen, those of us who are working in this special line place these results somewhat briefly before you. No one recognizes more keenly than we the dangers of claiming too much; no one knows the discouragements that come from unsuccessful cases more than we. The long, tedious, weary waiting to see whether a case will improve or fail is a well-known factor in our lives, but when one pauses and thinks of the utter hopelessness that characterized the disease in former days and of what can now be done, doubt and discouragement disappear and he feels with justice that by following in the footsteps of Hermann Brehmer, Dettweiler, and others in Germany, and Trudeau in our own country, that tuberculosis need no longer be regarded as a hopeless disease as in the past, and that we may yet be able to class it as we do small pox and the plague, as horrors of the past which have only to raise their heads to be vanquished.

MECHANICAL RESTRAINT AND SECLUSION OF INSANE PERSONS.*

BY CHARLES W. PAGE, M.D., DANVERS, MASS.

WHILE a certain proportion of the human family must have suffered from mental disorders for ages past, it is only about one hundred years since the propriety of controlling insane persons by the aid of manacles, shackles, chains, ropes, straps, etc., was especially called into question. At this stage of the world's progress, it is difficult for one to comprehend those former-day doctrines of philosophy, religion and ethics which overpowered or distorted human sensibilities to such a degree that compassion for the afflicted insane

[1] Journal of the American Medical Association, 1903. Transactions of the American Climatological Association, 1903.

* Read at State Board of Insanity Conference, State House, Boston, May 17, 1904.

had little, if any, weight in deciding what measures should be employed in their treatment; while a vague mysterious horror, or fear of the disease, readily suggested to friends or custodians barbarous antagonism to its manifestations. During the political and social upheaval of the French Revolution, but quite aside from any design on the part of the revolutionary actors, that great moral genius, Philippe Pinel, was appointed superintendent of the Bicetre, the great Paris asylum for incurable insane men. When Pinel entered the asylum with M. Couthou, a member of the Commune, they were greeted, it is said, " by the yells and exclamations of three hundred maniacs, who mingled the clanking of their chains with the uproar of their voices." This horrible condition of things had existed indefinitely without a recorded protest from political officials, church authorities, or friendly philanthropists. Public opinion had come to regard such conditions as inevitable and yet we all know to-day that the shocking features of that gloomy Paris prison asylum were due entirely to ignorance, and " man's inhumanity to man." Pinel alone held such an opinion at that time, and when he requested permission of the government to do away with " the chains, iron cages and brutal keepers " he was generally regarded as a reckless visionary, almost an insane man himself. Nevertheless, he removed the chains from some fifty men at once, and the others subsequently, without a resulting accident or untoward event. Owing, no doubt, in part, to unsettled political conditions in France at that time, this epoch-marking, dramatic incident in the world's progress of humanity, was not widely known or duly appreciated until after many years had elapsed. Meantime, an English Quaker, William Tuke, becoming sorely distressed with the depleting and repressive methods to which the insane in the government asylums of Great Britain were subjected, founded at York, England, and at his own expense, a hospital for the insane, where lunatics would be treated as sick people, and where gentleness and patience would, under all conditions, be exercised towards them.

This humane innovation in lunatic asylum practice attracted considerable attention in England, and, although his " Retreat " was conducted without ostentation, but in the simple, quiet methods which characterized Quakerism, it aroused intense hostility, and its methods were denounced and vilified, especially by those interested in the management of English asylums, in which insane inmates continued to be treated according to the rigorous code of the conservative British authorities. Chains, straps, strait-jackets, threats, force, coercion, held sway in practically all public asylums, while the York Retreat continued its gentle and most successful non-restraint ministrations to the insane. No doubt, theories and methods in many English asylums were in time somewhat modified by the influence of the York Retreat, but nowhere else were the efficient, advanced, Quaker principles adopted as the prevailing moral tone and force of an English institution prior to 1838, when at the Lincoln Asylum, Dr. Gardner Hill, seconded by Dr. Charlesworth, endeavored to absolutely abolish mechanical restraint. But their convictions were regarded as too radical by the authorities above them, and, as a consequence, they lost their situations as asylum officers. Yet the time for a revolution in lunatic hospital management was ripe, and the requisite man, with masterful endowments, was at hand.

In the following year, 1839, Dr. John Conolly, without previous experience in such work, assumed control of the lunatic asylum at Hanwell, containing over eight hundred patients. For some years previously this asylum had been managed upon lines which were conspicuously mild for those days. In fact, " it was deservedly considered one of the best managed asylums in England," and yet, Dr. Conolly found there forty patients subjected to mechanical restraint and, designed for such uses, about six hundred instruments, of one kind and another, half being leg locks and handcuffs, with forty coercion chairs. All these he collected in one room, which was called the museum, and from that time, no patient in Hanwell was subjected to mechanical restraint. In 1844, Dr. Conolly wrote as follows: " After five years' experience, I have no hesitation in recording my opinion that with a well constituted governing body, animated by philanthropy, directed by intelligence and acting by means of proper officers, there is no asylum in the world, in which all mechanical restraint may not be abolished, not only with safety, but with incalculable advantage." Dr. Conolly abolished mechanical restraint, not simply because it was an inheritance from the prison régime to which the insane were formerly subjected, but more especially because it was the material embodiment of all prison policy — coercion. As an English authority has stated it, " what he sought was not only to abolish the tangible instruments of restraint, but to substitute the power of a superior mind, guided by unvarying kindness. He showed by reasoning, he proved by trial, and he enforced, by all the high courage of his unvarying patience and his tender heart, the great principle that the insane are best governed by a law of kindness and that all coercion applied to them is not only unnecessary, but hurtful. The credit of first suggesting non-restraint does not belong to Conolly, but it has been well said the credit of originality is often due, not so much to the man who first suggests a thing, as to him who suggests it in such a manner as to display its value; or, not so much to him who sets an example worthy of imitation, as to him whose example compels imitation by its worth. What Conolly did was not merely to abolish restraint and torture within the sphere of his personal control, but to render their continuance impossible within the limits of civilization. Under the influence of his example, the fetters fell from the limbs of the lunatic in all English asylums. By example and precept,

by tongue and pen, he labored without ceasing, in defence of the great principles involved, and he had the satisfaction of ultimately seeing the practice founded upon them, more or less closely copied in every asylum in England, and in many others located in various parts of Europe. He found the lunatic an object of dread and suspicious horror; he left him an object of commiseration and kindness. He found insanity regarded as a disease of the mind, he left it recognized as a disease of the body. He found a madhouse a prison, and a place of torture without mercy; he left it a hospital for many and an asylum, in fact, as well as in name, for all inmates."

This great work, immeasurable in its continued and ultimate effects, was accomplished only as the result of the most painstaking personal application to detail in his own wards and a long continued battle for mercy and justice. Opposition to his theory and practice, some of it honest doubting, but much of it ignorant and bitter prejudice, sprung up and attacked him from all quarters. He met it first from his own country, from English asylum officials, and later from Continental critics. He met all opponents in the true Quaker spirit and his intelligence, his courage, and his sincerity triumphed, as such qualities always will, over error and ignorant prejudices. When his detractors could no longer maintain the commonly believed error that for mechanical restraint some substitute treatment no better, perhaps more reprehensible, was adopted, the assertion that Dr. Conolly's patients were of a different, a milder type than those to be found in other asylums, was advanced. First, in Great Britain, it was claimed that the Hanwell patients were a specially effeminate lot. Then, when non-restraint became the general working policy of English asylums, Continental fault finders asserted that English people were a more docile race than native Frenchmen or Germans. The same untenable assumption is often heard to this day in extenuation for the continual use of mechanical restraint in certain hospitals. It will be seriously stated that the original character of hospital populations varies, from the mild to the aggressive, in different sections of a given country, or state, and possibly in contiguous districts, even. At Danvers, mechanical restraint was abolished about four years earlier in the women's than in the men's wards, not because women patients are less difficult to manage, but for the reasons that an arbitrary position on this question was not assumed by the superintendent at first, and because the assistant physicians and supervisors in the women's department were especially responsive to suggestions in this direction. Eventually, when non-restraint had permeated the whole hospital, and when the chief assistant who had been gradually convinced of the feasibility of non-restraint against his pre-convinced but honest convictions, remarked in answer to some statement of fact, which was made one day, "Oh, it's a comparatively easy matter to avoid mechanical restraint now because we don't have the cases that require it as we formerly did," then and there, the superintendent took occasion to point out that he had discovered exactly what every man brought into intimate association with non-restraint, had discovered; namely, that non-restraint once established in an institution, conditions which formerly suggested its use rarely if ever occur; that, as institution after institution had been placed on the non-restraint basis, there had been a continuous, successive rediscovery of the same altered internal conditions, from the days of Conolly to the present time, a period of some fifty years. Such being the fact, it must be admitted that this less fractious, less turbulent condition of the insane in the wards of the hospitals was always the outcome of non-restraint and never the forerunner.

This discloses the real solution of the controversy. Where restraint is permitted, the general spirit of the management breathes coercion, antagonism enforced submission. When non-restraint is the undeviating rule, tact, persuasion and sympathy soften and mellow every act towards the inmates. The employment of mechanical restraint gives the attendants a wrong sense of their personal power over patients, such a physical advantage that they instinctively incline to self-assertion; to issue peremptory commands; to use ill-considered, irritating speech; to give curt answers; to make threats; in short, to attempt to intimidate all but the most quiet patients. "Do this, or so, or you will be sent to the back wards, you will be secluded, or you will be put in a strait-jacket," is the natural style of speech adopted by attendants when threats and penalties are at their command. Having thus threatened a penalty, the average uninstructed attendant concludes that proper hospital discipline demands its infliction unless the excited, frightened patient meekly capitulates, a result one could hardly expect with a sane person, much less with a deranged, apprehensive lunatic. Even well meaning attendants naturally fall into such errors unless carefully drilled and faithfully watched. Fresh recruits are constantly entering the nursing service, and only by individual work with them can the highest ideals of a qualified nurse be instilled into their minds.

I cannot understand how the superintendent of an insane asylum can satisfactorily regulate the use of mechanical restraint if he permits its use. He may reserve to himself the decision as to whether or not it shall be used in each case. But the chances are that he only learns of the final links in the long chain of circumstances which connect the special overt acts of the patient with some affair, trivial it may be, that originated the trouble, and which, by injudicious treatment from the attendants, ultimately assumed serious phases. Under such conditions, the supervising medical officer, when he authorizes the use of restraining apparatus, simply endorses the judgment of the attendants. Let it be understood

that restraint can be used only in exceptional cases, and exceptional cases will be brought to his attention too frequently.

An eminent English authority has recorded his convictions that "there can be no real compromise between the frequent use of mechanical restraint and its entire abolition. One system or the other must predominate in every asylum." In managing the insane, the first impulse of the attendant is to assume authority or superiority, and give commands or orders, and often with a penalty for disobedience expressed, or implied. When the non-restraint principle is adopted, attendants are under no temptation to utter such threats. Thus, they are dispossessed in advance of that which, in the great majority of cases, occasions troublesome friction between themselves and the patient. When driving patients is out of the question, attendants must induce or lead them. They must exercise the art of persuasion, of pleasing, of soothing. Thus, fears will be allayed; confidence will be gained, and a relation of helpfulness and friendship be established. In such arts, the capacity of the individual nurse varies; but all who approach patients in the right spirit, with that desire to befriend which qualifies attitude, tone of voice, choice of words, expression of the eye and use of the hands, can demonstrate the power of a kindly disposed, orderly mind over a disordered intellect. No doubt, there are insane patients who would suffer no personal injury, mental or physical, by the application of restraining apparatus. Indeed, I am willing to concede that cases may arise where, could their management be absolutely disassociated in its influence from all others, mechanical restraint might be the most expedient treatment. But, in an institution for the insane, it should be only the last resort, since so much for the general good of the inmates depends upon the nursing morale of the hospital, and the demoralizing ill effects of exceptions to the non-restraint rule are so pernicious and wide reaching, that officials or nurses should use mechanical restraint only when satisfied beyond question that its use or neglect would determine the life or death of the patient.

Perhaps I speak with assurance, but I worked out this problem at Danvers, where mechanical restraint was abolished deliberately. As has been stated, its use was discontinued in the female wards four or five years before it was wholly given up in the male department. The annual report of the Danvers Insane Hospital for 1897 contains comments upon this subject. To quote:

"I am aware that many persons regard non-restraint in lunatic hospitals as a fad of enthusiasts. I often hear this subject discussed in such terms, or dismissed with such indifference, that I infer comparatively few physicians even view this question from our standpoint, and therefore deem it proper to explain why mechanical restraint is abolished at Danvers. Mechanical restraint may be, and certainly is, used occasionally upon patients in general hospitals with no injurious consequences; but conditions in general hospitals and lunatic hospitals are so dissimilar, this fact proves little. I formerly permitted the use of restraining apparatus upon patients, endeavoring to limit its use to rare and exceptional cases. While working under this policy, I not only found it difficult to decide upon cases, and to convince the nurses that restraint was seldom necessary, but every exception in favor of mechanical restraint seemed to weaken the courage and resolution of the nurses, as well as to diminish my influence and control over them. Then, too, as long as nurses understood that straps and jackets could be employed as final measures, they not only relinquished mild efforts too quickly, but were inclined to assume a dictatorial, aggressive manner towards patients upon slight occasions; and this spirit of coercion as evinced by the nurse in his or her attitude towards the patient was, according to my observation, the starting-point of the trouble with refractory patients in the great majority of cases.

"Now that mechanical restraint is discarded, the nurses understand that they will be regarded as incompetent unless they can manage the patients in their charge without resort to violent measures, seclusion and restraint. Intelligent nurses do not complain of such restrictions. They appear ambitious to demonstrate that a trained nurse can manage the insane without the fetters and instruments which are relied upon in such cases by the unprofessional keeper. Certainly, the non-restraint rule has advanced a kindly, humane spirit in our wards as no other measures could have done. Nurses have no temptation or power to control patients by threats of punishment. Under such conditions, whatever native tact, art and persuasive powers the nurse may possess are rapidly developed; and, as a result, more sympathetic, friendly relations are early established between nurse and patient, and the common annoyances and irritations formerly experienced by both parties are largely avoided. The beneficial effects thus ensuing, when considered in the aggregate, are of such magnitude, I am resolved that the non-restraint rule shall not be broken except as a last resort, as a life-saving measure."

Since that time, I have been responsible for the custody and treatment of more than six thousand insane persons, not one of whom was restrained with mechanical appliances by my orders or within my knowledge. Because a former superintendent purchased retaining apparatus and experimented with it upon not more than two patients and for a period not exceeding one week, according to reports, the makers of such apparatus continue to circulate a statement that the Danvers Asylum is one of their patrons. I have seen patients who in their quiet moments requested that, in their recurring attacks of excitement, a strait-jacket might be applied. But, in such cases, I have found there existed a morbid, hysterical element, which, when properly treated, did not develop the frenzied periods the patient had come to expect and

dread. I have dealt with trying subjects. A native of West India was once transferred to Danvers from another state institution, because, if the nurse who conducted the transfer knew the facts and stated them, "they could not manage her." "But you have had her in restraint," I said. "Oh, yes," the nurse replied, "she has been let out of restraint only two hours a day." This patient was destructive, suicidal and vicious. She remained in the Danvers Hospital three years and nine months, and was never restrained there by the aid of mechanical appliances. In time, she greatly improved; she took her meals for a considerable period in our congregate dining room, and for a time before leaving was granted limited parole of the grounds. I confess that the case of this patient, who was epileptic, therefore hopeless as far as recovery was concerned, was a severe tax upon the mental and physical conditions of both officers and nurses, greater, perhaps, than the results to this single individual warranted. But the non-restraint principle, the *animus* of an ideal hospital régime was at stake, and its preservation was, in my opinion, worth all it cost. Besides, I regard the self-sacrificing care, the sympathy and the patience exercised by the nurses who accomplished such excellent results in this case, as examples of moral heroism, quite as creditable as many that have received public approbation and medals of honor; and who will put a price on moral heroism? Besides, what official or nurse, imbued with proper pride in his or her profession, is willing to admit that science, training and skill have no methods with the insane superior to those instinctively suggested to the mind of an inexperienced, uneducated layman? Too much emphasis cannot be put in the assertion that it is less the machinery employed in mechanical restraint than the spirit of coercion, which its employment fosters, that should be abolished from an insane hospital.

A prominent general practitioner of medicine once remarked to me, "This talk about non-restraint is all rot; we use it at times in our general hospital." This gentleman did not appreciate that the relationship existing between patient and nurse in the general hospital differs widely from that necessarily established in the insane hospital. He did not take into account the fact that, in the general hospital, where every act of the nurse is under the constant watch of rational observers, the use of restraint is safe-guarded as it cannot be in the insane hospital wards. Nor did he comprehend this important distinction, that in the general hospital, the chief end to accomplish by restraint is the control of the patient; while, in the insane hospital, the prime requisite for the highest success in management is the intelligent self-control of the nurse.

The argument against mechanical restraint applies in large measure to seclusion of the insane. While seclusion is, in some degree, less demoralizing in its effects or its influence upon the nursing staff of an institution, only in rare and exceptional cases can its employment be remedial or beneficial. If, as Conolly said, "Restraint is Neglect," it is doubly true that seclusion is neglect. If used, it should never be prolonged. As a rule, thirty minutes' seclusion is worth, as a corrective measure, more than twenty-four hours of the same treatment. Next to execution, solitary confinement is the severest doom that legal tribunals can pronounce upon hardened criminals. Solitary confinement is universally considered to be painfully trying to a sane mind. How can it be improving to a deranged man, shut away from associations with human beings, incapable of comprehending the logic of his position, consumed by delusions or burning with revengeful indignation towards the authors of his imaginary wrongs?

Can all the insane be managed without restraint or seclusion? Conolly always said "Yes" to that question. When, after consulting with him, superintendents of other institutions remarked that they would return home, and try non-restraint in their asylums, he would coolly reply, "You will succeed if you are in earnest." Some Continental hospital officials were well-nigh exasperated by Conolly's calm, significant, qualified prediction, "You will succeed if you are in earnest." He had been in earnest. In order to attain his ends at Hanwell, he had devoted a surprising amount of personal attention to each trying, difficult patient, visiting such both by day and night, watching the conduct of attendants towards such cases with unceasing vigilance. Superintendents who hope to accomplish results which made his name famous as a philanthropic physician and skillful asylum manager must imitate the example of Conolly to the extent, at least, of giving considerable personal attention to those patients whose conduct taxes the patience and wits of the nurses. The successful management of the turbulent insane without restraining apparatus cannot be accomplished by simply forbidding its employment.

Rules to meet the exigency of every possible situation cannot be formulated in advance, since the various patients will present such dissimilar, unexpected and individual features of difficulty. Therefore, the hospital rule maker, the commanding official, must intimately share with the nurses the labor and responsibility which trying cases force upon the management. I believe it is an important part of the system of instruction that each instance of friction between nurse and patient receive consideration from the superintendent, and if thought best, that the involved nurse be commended when she acted judiciously, or be admonished when evidently failing to exercise due art as a trained nurse. When the position of the nurse was faulty, the better way should be pointed out. Such methods teach, and the physician who adopts them is soon able to identify those nurses who have special aptitude for their work, and can select for the difficult posts those best qualified for the trying duties. Nurses who possess self-poise, capacity for tact, and power to rapidly conceive expedients will

naturally succeed. I have seen slender, light-weight girls manage the hardest wards quite as well as those of large stature. As an aid towards the development of such nurses at Danvers, each ward is supplied with special report slips to be used according to directions printed on each slip; *viz.*, "When a patient escapes; attempts to escape; receives an injury, accidentally or otherwise; has to be handled with force, or is secluded; the attendant engaged in the affair, or the one in charge of the patient at the time, must send a written report to the medical officer in charge of the ward in which the patient belongs, who will countersign the same and forward it to the office of the superintendent." At a convenient time, the patients thus reported are visited by the superintendent with the slip in hand, when such personal investigation and instructions as may seem necessary can be given.

Being in earnest is the solution of the non-restraint question. The ruling authority over and above the nursing staff must be in earnest; and this signifies clear insight as to the evil and its remedy; certainty as to what can be done with the insane by virtue of patience, sympathy and tact; with determination, watchfulness, faith and enthusiasm.

POTT'S DISEASE. TREATMENT AT A LATE STAGE. REMARKS ON THE PATHOLOGICAL ANATOMY.

BY E. W. TAYLOR, M.D., BOSTON,
From the Neurological Service, Long Island Hospital.

THE following case derives its interest from the facts that the disease developed in an adult, following an attack of typhoid fever, that the process in the spine progressed steadily to involvement of the cord resulting in a practically complete paraplegia, and that persistent treatment produced a definite amelioration of the condition, in spite of the serious damage to the cord, as shown post-mortem:

P. McG., forty-five years old; Irish; by occupation a teamster; was admitted to the Long Island Hospital, April 16, 1895. He had been in the Boston City Hospital the preceding summer with typhoid fever. About two weeks after his discharge he noticed a lump about the middle of his back, which was not painful. Shortly after this he had difficulty in walking, and was then treated at the Carney Hospital by Dr. J. E. Goldthwait. Under this treatment the lump decreased considerably in size.

The history given at the Long Island Hospital was as follows: He denied venereal infection, and in general had been well antecedent to the attack of typhoid fever mentioned. He had remained in bed twelve weeks, and for three weeks had been treated with a plaster jacket, after which he was able to do his work. About two months before admission to the Long Island Hospital he had noticed weakness of the legs, although he was still able to walk. At the time of entrance he was unable to walk and complained of numbness of the legs and cold sensations in the legs from the knees down. He also had some difficulty in micturition, but no incontinence. There was at no time any cerebral disturbance.

Physical examination at this time showed the arms uninvolved; passive movement in both hips slightly hindered; stiffness and rigidity of both legs, particularly of the right; ankles rigid; active movement impaired in all directions; no ataxia; feet in position of marked plantar flexion; knee jerks on both sides very much increased, with patella clonus; ankle clonus strongly indicated on both sides; plantar on both sides definite;[1] cremaster present, slight; abdominal and epigastric reflexes normal. Sensibility to pin prick was at this time unimpaired; contact was also normal and there was no loss of muscle sense in the toes.

From this time on the symptoms already noted increased steadily in spite of such treatment as was applied, the kyphosis varying in size, dependent largely upon whether the patient attempted to sit up, when it at once increased. The spastic rigidity of the legs increased to practically complete paraplegia with highly exaggerated reflexes, but without marked objective disorder of sensibility. Sensations of numbness in the legs were prominent; difficulty in micturition persisted, and he had at times painful sensations in the epigastrium when he attempted to sit up. Contractures of the feet became very marked, and slight but definite disorders of sensibility came on in the legs; the prick of a pin could no longer be recognized as such. This condition remained fairly constant with occasional temporary improvement, but on the whole there was a steady increase in the signs of injury to the cord.

On July 20, 1898, he was discharged to the Carney Hospital to be again under the care of Dr. J. E. Goldthwait. During his stay there he improved decidedly in spite of the development of a genito-urinary tuberculosis. Dr. Goldthwait has kindly written me as follows of the case, in which he took a very personal interest:

"He was seen by me [Dr. Goldthwait] about nine years ago, first at the Carney Hospital, then being about forty-four years of age, with a sharp knuckle in the spine, undoubtedly representing a beginning Pott's disease. He was treated at that time but gradually developed a paraplegia, for which in those days we knew no other treatment than long quiet in bed. The principle of hyperextension, which has been used so much since, was not then instituted. Accordingly, as it meant a long period of rest he went to Long Island, and was seen by me two or three years afterwards. At that time the paralysis had existed for four years, and while there was naturally little expected of treatment by hyperextension, in the light of a few cases with marked improvement where the paralysis had existed for a shorter time, his removal to the Carney Hospital was advised, a statement being made at that time that he could be no worse and might possibly be improved.

"At the time of the transfer there was absolute paraplegia, except that in one foot the toes could be moved slightly, due apparently to some slight power in the short flexors. On entering the hospital the spine was hyperextended, this treatment being continued for nearly two years. During the long period of paralysis adhesions had formed in the knee, hip and ankle joints, the feet being in a position of extreme dorsal extension. These adhesions were broken under ether and tenotomy of the tendo Achillis performed. In the first six months decided improvement took place, and voluntary contraction of practically all the muscles below the waist became possible. There was, of course, much less strength than normal, but the contraction of all the muscles was definitely apparent, and there was

[1] The Babinski phenomenon had not at that time been studied.

sufficient in the anterior thigh muscles so that horizontal extension of the legs was possible. With the jacket it became possible for the patient to swing himself out of bed, and with the aid of crutches to hitch along the ward. The improvement made him distinctly less helpless, so that the hospital care was less arduous. During the last year of his stay at the hospital the improvement amounted to little. There was, perhaps, a slight increase in the amount of strength in the legs, but the change was almost imperceptible.

"If you remember, you saw him several times at the Carney Hospital during the first six months of his treatment, and the case interested me exceedingly, as it apparently represented one in which impulses were transmitted through a diseased cord after four years of paralysis. Undoubtedly, a part of his improvement was due to the manipulation and the operation for the deformity of the feet, but it did not seem probable to any of us, and I think that you shared the same opinion, that all the improvement could be explained in this way."

After staying two years at the Carney Hospital he returned to the Long Island Hospital, Feb. 29, 1900, with a decided improvement in all of his symptoms. Passive motion still remained limited in both hips and knees, more marked on the right; he was able to abduct and adduct the legs but had no flexion. He had fairly good motion in toes and plantar flexion in both feet. The knee jerks were very active, and there was ankle clonus on both sides. Sensibility was essentially normal to pain and temperature. The back was straight, somewhat rigid, without kyphosis. A leather jacket was continually worn, but it was with great difficulty that the patient could be induced to walk or take exercises. He was able, however, to walk the length of the ward with crutches, swinging his legs somewhat from the hips, a very marked improvement over his condition before going to the Carney Hospital.

From this time on up to Oct. 13, 1901, his condition remained fairly good apart from excessive constipation and disability resulting from the cord lesion. Oct. 31, 1901, he was seized with a sudden attack of abdominal pain with vomiting. Examination showed tenderness over the abdomen, but without distention or spasm. He improved, and on Dec. 6, complained of nothing beyond persistent constipation. Recurrence of abdominal pain appeared with attacks of nausea, vomiting, and a gradual failure in physical condition. (I omit the details of his final illness, due to the extension of the tuberculous process, with its accompanying effects.)

Feb. 15, 1902, the following note was made: "Last night the patient was seized with a very severe attack of nausea and vomiting. About this time the pain in the abdomen became marked and was not benefited either by irrigation or fomentations. Patient complained of feeling very weak; pulse was rapid and weak. He was stimulated and given calomel in divided doses by mouth. He passed a fairly comfortable night. This morning he seemed much better, took a fair amount of nourishment and retained it. His condition remained the same throughout the day with no signs of nausea, vomiting or pain until about 4.30 P.M. when he was found by the nurse to be in a state of collapse. There was marked cyanosis and dyspnea; pulse was rapid and weak, and he complained of excruciating pain in his abdomen. Under vigorous stimulation he rallied for a few hours, but quietly died at 10.30 P.M."

AUTOPSY (02: 14, lxx.). By Dr. G. B. Magrath, Feb. 18, 1902. Sixty-four hours post-mortem.

Anatomical diagnosis: Chronic adhesive pleuritis; edema of the lungs; hypostatic congestion of the lungs; amyloid infiltration of the spleen; focal necrosis of the liver; chronic nephritis; tubercular pyelonephritis; amyloid infiltration of the kidneys; dilatation of the ureters; chronic cystitis; tuberculosis of the prostate; tuberculosis of the epididymis; fistula of the urethra; tuberculosis of the spine; tuberculosis of the aortic lymph nodes.

Body: That of a man fifty-one years of age; length 168 cm.; well-developed; some atrophy of the muscles of the thighs and legs; rigor mortis absent; post-mortem lividity of dependent parts. Pupils equal, .6 cm. in diameter. The outer aspect of the left upper arm presents an elevated area about 2 cm. in diameter, the central part of which supports a reddish crust. Marked plantar flexion of the toes of both feet. The perineum at its middle point presents an opening .5 cm. in diameter, the edges of which are grayish-red, and which upon pressure yields thick, greenish-yellow pus. Upon section, subcutaneous fat 1 cm. in thickness; muscles pale and fat, infiltrated. Vermiform appendix is retroperitoneal, directed upward and backward behind the cecum. Mesenteric lymph nodes normal.

Thorax: Height of diaphragm fourth interspace on right side, fifth rib on left.

Pleural cavities: Both completely obliterated by old fibrous adhesions of the pleuræ.

Pericardial cavity: Normal.

Heart: Wt. 305 gm.; upon section, myocardium brown and somewhat flaccid. Wall of left ventricle 1.5; of right 0.2 cm. in thickness. Mitral valve 11, aortic valve 5, pulmonary valve 8.3, tricuspid valve 12 cm. in circumference. Depth of left ventricle 9 cm. Valves and cavities normal. Coronary arteries present a very slight degree of sclerosis.

Lungs: Anterior borders meet in median line. The left in its posterior two thirds is dark bluish-red and of slightly increased consistence, upon section, very frothy on pressure. The right lung presents similar characteristics with the addition of a small puckered scar at the apex. Both lungs are fairly crepitant throughout.

Abdomen: Peritoneum normal; a dilated loop of the sigmoid flexure occupies a position in front of the cavity at the level of the umbilicus.

Spleen: Wt. 130 gm.; consistence doughy; upon section brick-red, the surface of section studded with pale gray, transparent areas ½ to 1 mm. in diameter, which upon the application of iodine become mahogany-brown.

Stomach: Not remarkable.

Intestines: Several loops of the ileum lying in the pelvis present considerable injection of the veins. The colon contains numerous scybalæ.

Pancreas: Normal.

Liver: Wt. 1,650 gm.; the anterior border 11.5 cm. above the costal margin; the organ is twisted upon its long axis; color brown-red. Upon section, markings vague; cut surface slightly marbelled, presenting pale brown areas 1 cm. in diameter, with a purple-brown field. Iodine test negative.

Gall bladder: Normal.

Kidneys: Wt. of left 180 gm.; estimated wt. of right 100 gm.; capsule slightly adherent. Left kidney 12 cm. in length, free surface considerably lobulated, the lobules pale brown, the depressions red; upon section, markings distinct, pyramids brown, cortex pale yellow-brown; glomeruli visible as pale points which upon the application of iodine become mahogany-red; cortex uneven, 4–5 mm. in thickness; some of the pyramids show small, irregular, cheesy areas. Right kidney 7.5 cm. in length; the perinephric fat about

the upper lobe presents an irregular cavity about 3 cm. in diameter, containing thick, greenish-yellow pus; upon section, the apices of the pyramids present erosions, in one instance extending to the cortex, and resulting in a cavity containing a calcareous mass; the pyramids in the vicinity of the erosions are somewhat caseous; pelvis slightly dilated, its mucous membrane in places reddened; general color gray-red; cortex .4 cm. in thickness. The right ureter is dilated, 2.5 cm. in circumference; upon section, wall 3 mm. in thickness, the inner surface smooth and red.

Adrenal glands: Normal.

Bladder: Somewhat hypertrophied; upon section, the mucous membrane presents numerous red, rough, irregular elevations; capacity about 100 cc.

Genitalia: Prostate normal in size; the prostatic urethra at a point to the right of the veru montanum presents a circular opening 5 mm. in diameter, continuous with the fistulous tract and communicating with the sinus in the perineum. The prostate is 4 cm. in breadth; upon section, presenting multiple larger and smaller yellow areas, some of them slightly prominent, others soft and purulent. The cavity of the tunica vaginalis, both right and left, is completely obliterated by old fibrous adhesions. The right epididymis (head), upon section, presents a dry, caseous area about 1 cm. in diameter. Vasa deferentia apparently normal. Vesiculæ seminales, upon section, show some thickening of the walls; otherwise not remarkable. The perineum, upon section, shows a well-defined abscess cavity 2 cm. in diameter, containing thick, green-yellow pus; this cavity is in continuity with the fistula above noted.

Aorta: Upon section, shows moderate arteriosclerosis with slight calcification; the thoracic portion lies 3 cm. to the left of the median line. Aortic lymph nodes 3 x 2 cm.; upon section showing multiple yellow areas, some of which are purulent, 1–3 mm. in diameter.

Spinal column: At the level of the eleventh thoracic and the first to third lumbar vertebra shows some general thickening with some flattening of the anterior surface of the bodies, together with backward curvature. This segment of the spine removed and placed in 10% formalin.

Organs of the neck: Not examined.

Cranium: Not examined.

Spinal cord: Segment removed in loco with portion of spine.

Bone marrow: Not examined.

SPINE.

The following detailed examination is limited to the spine and cord:

Longitudinal, dorso-ventral hemisection of the spine (see Fig. 1) shows several vertebral bodies invaded by the tuberculous process, and one body (eleventh thoracic) practically entirely disintegrated. Above and opposite to this body the tuberculous mass constricts the spinal canal. A similar process, but much less marked, occurs in the bodies immediately above and below this point, especially on their ventral aspects. The dorsal kyphosis is slight, due to the fact that the opposite vertebral body, although disintegrated, is not greatly deformed. The sub-dural space of the cord is at no point invaded, and the damage to the cord at this level, conspicuous in the clinical side, through the course of the illness was brought about certainly in part by the effects of extra-dural pressure. Immediately above this focus of disease (Fig. 1, 4) is an annular constriction of the lumen of the canal, reducing its caliber one fourth to one third. There is absolutely no intra-dural tuberculosis here or elsewhere, but the dura is traversed by annular connective tissue bands which are apparent on its inner surface. The dura is easily separable from the bone dorsally, excepting at this point of constriction. Ventrally, the dura is closely adherent to the bone, and also laterally, but to less degree. On the ventral side, the dura and the periosteum are firmly adherent for a distance of three and a half inches or about three bodies. Above and below this point of special constriction the cord is

FIG. I. — Hemisection of spine from seventh thoracic to second lumbar vertebra inclusive, showing tuberculous process especially developed at the eleventh thoracic vertebra.

externally normal, the lumen of the canal not being sufficiently narrowed to exert immediate pressure. The freedom of the canal from tuberculous deposits is particularly worthy of note. Further sections of the vertebral column show various foci of old, inactive tuberculosis in the bodies at the level under consideration.

MICROSCOPIC EXAMINATION. CORD.

Sections of the cord were cut from eight levels, below, through and above the main tuberculous lesion (Fig. 1) and stained by the Weigert myelin sheath, hematein-eosin and phosphotungstic acid-hematoxylin methods. The extent of the local injury to the cord is shown by the secondary degenerations. Studied from below upward the various levels show the following noteworthy points:

The lower sacral cord is normal.

In the lumbar enlargement (Figs. 1 and 2, 8) the membranes show no alteration and the larger blood vessels are normal. The ventral horn cells show an abnormal degree of pigmentation; in many instances

the entire cell body is filled with pigment granules, obscuring or actually taking the place of the nucleus. The ventral nerve roots do not, however, show signs of degeneration. The dorsal tracts are not deeply stained, but are not degenerated. Both pyramidal tracts show well defined though not complete degeneration. Many fibers, presumably belonging to this system of neurones, are intact. The cross section is otherwise normal.

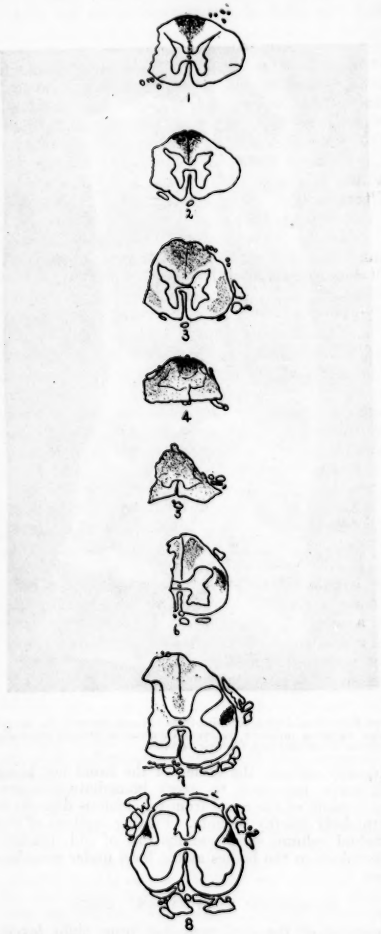


FIG. II. — Cross sections, showing areas of degeneration at the eight levels studied. (See Fig. 1.) Edinger drawing apparatus; accurate tracings. The defect in the sections, especially in 1, 2, 6, 7, is due to the fact that a preliminary hemisection of the spine with the cord in situ was made. The deformity of the cord, due to actual pressure, is shown in 4 and particularly in 5, being in sharp contrast to the well preserved general contour of the other levels.

Sections slightly higher (Figs. 1 and 2, 7) show blood-vessel alterations, especially conspicuous in the degenerated area of the pyramidal tract. The walls are very markedly thickened, but the lymph spaces about the vessels show no definite dilatation. The dorsal columns are extensively degenerated, particularly in their ventral portions, but dorsal nerve roots are normal. Hyperpigmented ventral nerve cells are frequent, and there is a somewhat doubtful degeneration of ventral nerve roots. The neuroglia overgrowth (phosphotungstic acid-hematoxylin) is considerable in the degenerated areas with many star shaped cells with apparently attached processes. The marginal layer of neuroglia is somewhat but not markedly thickened. At the level (Figs. 1 and 2, 6) degeneration both dorsal and lateral is extensive. The region of the pyramidal tract shows few normal myeline sheaths, with dense neuroglia overgrowth. This area of degeneration extends, however, very much beyond the confines of this tract in all directions. In the dorsal tracts the degeneration is also extensive, though less complete than in the lateral columns. Vacuoles occur sparingly in the less degenerated parts, but are unrelated to the blood vessels. Dilated perivascular spaces occur, but are not conspicuous and of doubtful pathological significance. The smaller blood vessels show definite and fairly constant thickening of their walls, which stain homogeneously (hyaline). The larger vessels of the pia and the ventral artery of the cord do not show these alterations. This level otherwise resembles the preceding.

At the level (Figs. 1 and 2, 5) the cord is extremely distorted, through the alterations in the vertebral canal which were most marked at this point.[2] The substance of the cord is much altered by diffuse fiber degenerations, neuroglia proliferation and altered blood vessels, as previously described. The general appearance is that of the late stage of an inflammatory destructive process. Cells with small round nuclei are numerous, occasionally grouped, presumably in great part neuroglia, but nowhere is anything approaching an active inflammatory exudate present, standing in direct relation to blood vessels. There are no free polynuclear leucocytes, nor giant cells. Eosin-staining homogeneous bodies, usually round, are numerous (corpora amylacea). The dorsal portion of the section is invaded to a slight degree by a mass of highly cellular connective tissue, apparently continuous with the pia. From the histological appearances conduction through the cord at this level must have been almost wholly interrupted.

At level 4 (Figs. 1 and 2) there is likewise a marked deformity of the cord with dorso-ventral flattening. The histological changes are essentially the same as those of the next lower level, 5, practically a complete transverse lesion.

Figs. 1 and 2, 3: There is extensive dorsal degeneration, no doubt in great measure secondary, with a few normal fibres entering in the root zone. There is also a diffuse lateral degeneration occupying a good part of the tracts, including commissural fibres lying in this part of the cord. Other alterations are as noted in preceding sections. The pia as at all other levels, except for the trifling exception noted at height 4 and to less degree at 5, is normal, and shows no sign whatever of tuberculous involvement.

Figs. 1 and 2, 2, show marked secondary degeneration of the column of Goll and very slight diffuse degeneration in the lateral tracts, particularly near the periphery. The cells of Clarke's column are in general of normal contour and number, but like the ventral horn cells are, in many instances, hyperpigmented, to the extent of complete obliteration of the fine cell structure. The direct cerebellar tracts show no

[2] The possibility of artefact is excluded since the cord and bone were hardened together, and the cord not handled until its shape was thoroughly fixed.

systemic degeneration; due, no doubt, to the fact that the main lesion lies below the point at which the constituent fibers of these tracts first make their appearance.

Considerably higher in the thoracic region (Figs. 1 and 2, 1) the thickening of blood-vessel walls persists, and the pigmentation of cells is as noticeable here as below, the cell bodies of Clarke's column sharing in this change. The region of the direct cerebellar and Gower's tracts is somewhat faintly stained, but the lighter staining is not sharply limited to these tracts, and there is no marked disappearance of individual fibers or alterations in the contour of the myeline sheaths. The neuroglia is proliferated in places. The dorsal tracts, in their median portion (column of Goll), show a very extreme degree of degeneration, extending from the dorsal periphery to the dorsal commissure. There is practically a complete loss of myelinated fibers in this area, with a few fibers spared in the more ventral portion. This extreme destruction of fibers, together with a very extensive neuroglia overgrowth, demonstrates the completeness of the injury to sensory nerve roots at the level of the chief lesion either without or within the cord. The high degree of degeneration in the dorsal median column is in contrast to the less marked degeneration of the pyramidal tracts below the lesion. The dorsal external tracts (Burdach) are entirely normal at the level studied, constituted by fibers entering above the lesion, as are naturally also the dorsal nerve roots. The dorsal degenerations at levels 6 and 7, as the lateral degeneration at 3, are presumably commissural tracts.

A summary of the foregoing findings gives these points of special importance: Tuberculous disintegration of eleventh thoracic vertebra, and to less degree of several adjoining vertebræ; constriction of lumen of the spinal canal; no intradural tuberculosis; widespread degeneration and deformity of the cord at the level of the eleventh vertebra; secondary degenerations above and below this level, with marked sensory involvement.

The following matters call for further comment. First: the effect of treatment in relation to the post-mortem findings; secondly, the method of production of the cord alterations; thirdly, the relation of the lesion to prognosis in tuberculosis of the spine in general, and the means by which mechanical treatment benefits.

It appears from the clinical course of the case in relation to the autopsy that a process of extreme severity, leading to irremediable alterations in the cord must have occurred early in the disease. The comparative slightness of the kyphosis at any time is no doubt in a measure explained by the late onset of the disease, at the age of forty-four. It is of interest, though it has frequently been observed before, that the degree of cord injury is not dependent upon the amount of bony deformity, but is rather due to the character which the tuberculous process assumes. In a detailed study of two cases of Pott's disease, Spiller[3] alludes to the fact that only in an exceedingly small percentage of cases is the injury of the cord due to deviation of the vertebræ alone; in the great majority, 98% by one estimate, the paralytic symptoms are produced by an external pachymeningitis brought about by the tuberculous deposit. Inasmuch as such a deposit is usually of gradual formation and is prevented for a considerable period of time from actually encroaching upon the cord, because of the intervening dura, the tendency of paraplegic conditions towards recovery finds a ready explanation. It often enough happens that in cases which are particularly active, or in those in which treatment may not have been faithfully carried out, the dura is penetrated and the cord then becomes exposed to a direct pial inflammation and an accompanying invasion of its substance, a matter also discussed in a measure by Spiller. In such cases the hope of recovery is less and the possibility of a general tuberculous infiltration with an acute softening of the cord, correspondingly increased.

In the case which forms the subject of this communication, the paraplegic symptoms were well developed, though they afterwards increased somewhat, when the patient first came under observation at the Long Island Hospital. Before he was transferred to the Carney Hospital for special treatment, the condition of the legs and sphincters, exaggerated knee jerks, etc., justified the assumption that the cord was definitely involved. Laminectomy for the relief of these symptoms had been considered, but was not done. In spite of the apparently hopeless condition of the patient, the vigorous and long-continued treatment by extension, supplemented by massage, unquestionably led to a very considerable amelioration of the symptoms, during the first year of his stay at the Carney Hospital under Dr. Goldthwait's personal supervision. The improvement would no doubt have been permanent and in a measure progressive had not a genito-urinary tuberculosis supervened, with a gradual, wide dissemination of the process. As it was the patient was able to be up, and to make some pretence toward unaided locomotion. The study of the condition post-mortem, to be discussed in detail, later, showed a wholly extradural tuberculous process, not very active in appearance, which early in the disease had no doubt been more acute, and had led to sufficient pressure, aided by the kyphosis, to injure the cord and nerve roots to the extent of producing a destructive, transverse local lesion, with the later development of the secondary degenerations which have been described. It is hard, therefore, to picture a case which clinically, and as more completely studied post-mortem, could present a more hopeless prospect of benefit through treatment, however energetic.

It is increasingly evident that the exact mechanism of the cord lesions, in Pott's disease, varies in different cases, and it becomes a matter of importance to determine, if possible, the character of the underlying process. Schmaus and Sacki,[4] in a detailed article on the subject, like Spiller, insist upon the rarity of bony compression as a cause of the cord alterations and are inclined

[3] Spiller: A microscopical study of the spinal cord in two cases of Pott's disease. Bull. Johns Hopkins Hosp., ix, 125. 1898.

[4] Schmaus-Sacki: Vorlesungen über die pathologische Anatomie des Rückenmarks, p. 417.

to attribute importance to edema, produced by venous and lymph stasis, leading secondarily to glia proliferation, swelling of nerve fibres, and the elaboration of certain chemical substances, which in turn give rise to inflammation. Apart then from the mere fact of greater or less compression of the cord, a toxic cause is also at work, the result of edema, which indirectly is due to the altered conditions of the circulation, brought about by the tuberculous process. Animal experimentation has shown that edema quickly leads to degeneration of nerve elements and sclerosis. Other factors these writers regard as of less consequence than edema, though the possibility of anemia of the cord and direct transmission of inflammation by way of the pia are recognized. The term compression is naturally disapproved, the condition being rather due to the results of disordered circulation. From this point of view such improvement as takes place is regarded as due to the relief of edema, and also possibly to the preservation, and even to the conceivable regeneration of central fibers with restoration of function. The recent experimental work of Max Borst embodied in the last Warren Triennial Prize Essay, is important in relation to the question of the possibility of the restoration of fibers of the central nervous system. Results appear to prove that under favorable conditions a certain regeneration may take place.

W. L. Worcester [5] described briefly some years ago a case of probable regeneration of nerve fibers in the pons. The sections, which I had an opportunity of studying, certainly appeared to bear out this assumption; at least no other satisfactory explanation presented itself. Very recently Bikeles [6] has asserted the possibility of slight regeneration of intra-medullary nerve roots, referring critically to Spiller's and Frazier's[7] recent article on the subject in the University of Pennsylvania Medical Bulletin. Bethe's work in this connection is also of interest. Small, however, as the evidence for such regeneration still is, certain facts brought out by these and other recent observers must be given due weight, and the supposed fixed principle that central fibers have no power whatever of regeneration must be held liable to modification.

Considering the case here presented, bony compression, probably more than ordinarily met with, accounts in a measure for the pronounced cord symptoms. The deformity of the cord bears evidence to this fact. A further cause must, however, be sought for the high degree of pathological change within the cord. No doubt, vascular changes with edema, as described by Schmaus-Sacki, were responsible although the evidence of edema at the late stage when the cord was studied was not apparent. In the absence of extra- and intra-dural tuberculosis, no other explanation appears available, unless we admit the local action of a problematic toxin elaborated by the neighboring, at one time active, process. Alfred Gordon [8] has recently described in detail a case in which marked changes of the cord were found, with no pressure whatever from displaced vertebræ, and quotes Homen's experiments, in which he showed that such lesions are due to toxins, elaborated by the bacteria, when the bacteria themselves are no longer demonstrable.[9] The fact, at least, must now be generally admitted, that actual pressure is but one element in the production of the lesions occurring in Pott's disease, and that disordered conditions of the circulation and possible toxemia play a definite, though not as yet precisely determined part.

A recent paper by C. L. Dana[10] is also of interest. Among five different ways in which tuberculosis may affect the spinal cord, Dana includes a myelitis of tuberculous origin, which he asserts is not yet recognized as a pathological entity by neuropathologists. He quotes a case, in which a man, suffering from amyotrophic lateral sclerosis, suddenly developed fever, with a rapid paraplegia, death occurring within a week. Post-mortem the cord showed an acute non-hemorrhagic softening in the lower part of the cervical region, and in this softened area tubercle bacilli were found. Dana regards this, therefore, as a case of acute tuberculous infection, with myelitic softening. No other evidence of tuberculosis was found, but the examination was not absolutely thorough. This important case is suggestive from several points of view. It establishes the possibility of a softening (myelitis?) from the presence of tubercle bacilli alone, and possibly explains the frequent suddenness of onset of paraplegic symptoms, which gradual compression or edema would not be sufficient to produce.

The following case recently seen in consultation with Dr. Wm. H. Grainger is also suggestive of a true tuberculous myelitis in Dana's sense, although unfortunately no post-mortem verification was possible.

A man of forty-four had had tuberculosis of one lung for several years, and a rectal abscess, but with no signs whatever of Pott's disease, or spinal cord involvement. For about five weeks before I saw him, he had rapidly grown worse. Ten days before, paraplegia began to develop, which in the course of a few

[5] Worcester: Journ. Nerv. and Ment. Dis., xxv, 698, 1898.
[6] Bikeles: Zur Frage der Regeneration im Rückenmark, Neurolog. Ctb., xxiii, 559, 1904.
[7] Also: Contributions from the Wm. Pepper Laboratory, No. 4, 1903.

[8] Gordon: Journ. Nerv. and Ment. Dis., xxxi, 526, 1904.
[9] In this connection a paper by Orr, "A contribution to our knowledge of the course of the lymph stream in the spinal roots and cord," Rev. Neurol. and Psych., I, 639, 1903, is suggestive. His main conclusions are as follows: 1. Although bacteria have little tendency to spread along the nerves, their toxins can be carried in the lymph stream and exert their influence some distance from their source of origin. 2. In the spinal roots the flow of lymph is upwards towards the cord. 3. Of the lymph flowing up the posterior roots, the greater part passes into the posterior columns, while a small quantity flows into the lymphatic spaces of the pia-arachnoid covering the posterior and lateral regions of the cord. 4. Where the fibers enter the cord, at which point their sheath and neurilemma are lost, they are specially vulnerable to the influence of toxins in the lymphatic system of the roots and meninges. This applies to both sensory and motor nerves. The last two conclusions are important in view of the recent opinion expressed by Marie and Guillain on the etiology of tabes, viz., that this disease is due to a lesion — probably syphilitic — of the lymphatic system constituted by the posterior roots, pia and cord. 5. The course of the lymph stream in the posterior columns is ascending. 6. The lymphatic system of the posterior columns does not communicate with that of the lateral columns.
See also Guillain: Rev. Neurolog., No. 23, 1899.
[10] Dana: Med. News, April 9, 1904. Also Studies from Department of Neurology, Cornell University, Vol. 1, 1904.

days went on to signs of complete transverse lesion of the lower cord, with the usual disorders of sensation and loss of sphincter control. The temperature was moderately elevated, 102°, and bed sores developed, with delirium. He died one week after.

In this case the opinion was expressed that a lumbar transverse myelitis had developed on the basis of a pre-existent tuberculosis, although there had been no previous sign of involvement of the vertebræ or invasion of the spinal canal. In the case reported in this paper, however, the microscopic evidence is not sufficient to establish such an origin for the lesions nor was the course characteristic, although the widespread degeneration at one level lends a certain weight to this assumption. Actual pressure, with consequent edema, are, no doubt, sufficient to explain the appearances.

Finally, the question of prognosis is naturally of great importance, as studied from the standpoint of the pathological changes. That Pott's disease of the type seen fifteen or twenty years ago is now a comparatively rare affection will at once be acknowledged. Mechanical methods of treatment have been chiefly responsible for this change. Extreme degrees of interference with cord functions may now be practically cured by attention directed to a relief of pressure in the broad sense. Cases taken early in their course are therefore remediable, in spite often of very high degrees of spasticity; if taken too late, however, after actual cord lesions have developed, the chance for recovery is essentially the same as in any other destructive cord affection. Even in such cases, improvement of very considerable degree may take place, as demonstrated by the instance here reported. Operative measures, laminectomy, have of late years not been attempted. If the case be in an early stage, operation is not necessary, and if in a late stage, it is unavailing.[11] The immediate source of the disturbance, ventral to the cord, cannot be reached, and the mere removal of dorsal pressure could only in the rarest instances be efficacious. The case here reported could in no way have been relieved by laminectomy, whereas it was very materially benefited by systematic stretching and manipulations extended over a long period.

The points to which special attention is called in the case are:

The rapid onset of Pott's disease, in a man over forty years old, otherwise non-tuberculous.

The evidence of actual bone pressure on the cord as shown by its deformity.

The extreme local injury to the cord, suggestive of a myelitis.

The very marked predominance of motor over sensory symptoms, in spite of extensive degenerations in sensory areas.

The unquestioned improvement under treatment.

[11] Bullard and Burrell in 1889, Boston Med. and Surg. Journ., Oct. 24, 1889, discussed the question of operation for caries of the spine, on the basis of a case operated on by Dr. Burrell. At that time they were able to collect only eleven cases of operation for the removal of compression.

Medical Progress.

REPORT ON MENTAL DISEASES.

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

(Concluded.)

RATE OF INCREASE OF INSANITY.

A close analysis of the admission statistics of the institutions for the insane in England and Wales from 1891 to 1901 inclusive, which appears in the last annual report of the Commissioners in Lunacy, shows that the percentage increase of the ratio of the insane to the population in those countries had risen in these ten years from 1 in 307 men and 1 in 296 women to 1 in 274 and 1 in 269 respectively. Their statistical facts, if trustworthy, and it appears to them that they are, although as they point out, they only refer to about four fifths of the total (known) insanity in the kingdom, also justify the inference that as regards those who were cared for in asylums, hospitals. and licensed houses, the rate of increase in the numbers, both of those in residence and those admitted, when contrasted with the total number of persons living at each term, has been much smaller amongst those who are of ages twenty to fifty-four than amongst those above the latter age. Indeed, if comparison with the actual rate of increase of the population in the ten years be permissible, the rate of increase of the ratio of the insane to population is seen to be below the foregoing rate in the younger group, but above it in the older.

It may, therefore, be inferred that the growth of insanity amongst those of the community upon whom its burden would most be felt is really lower than the rate of growth in population at the same period of life; and that it is only when that term is past that a rate of increase in excess of that of the population is to be found.

PARANOIA.

Smith [1] holds the following views on this subject: 1. The term " paranoia " is useful if it be limited to cases of chronic delusional insanity in which there are organized and systematized delusions, whether of persecution or exaltation, and whether these run separately, concurrently, or by transformation from persecution to exaltation, and whether the disorder originates in childhood and youth (*originare paranoia*) or later in life (*tardive paranoia*), and whether associated with heredity or not.

2. In all these cases the importance of the affective element of mind must not be ignored, and it is erroneous to use the term " paranoia " as implying primarily intellectual disorder to the exclusion of, or prior to, disorder of " affect."

3. Allowing that there are acute cases in which delusions appear to be organized and systematized, and yet in which recovery appears to take place, many of these are merely the initial phase of chronic delusional insanity with a remission of symptoms.

[1] Presidential address. Jour. Ment. Sci., October, 1904. Vol. l, No. 311.

4. If the incubus of the idea of primary intellectual disorder be got rid of, there is no difficulty in recognizing that some cases of paranoia may begin with an acute functional mental disorder of the nature of melancholia or mania (as is indeed recognized even by those who take the primary intellectual view), or even may follow a delirious or a confusional state.

5. With this exception, acute confusional insanity (acute *Verwirrtheit*) and acute delusional states (acute delirium, collapse-delirium, *Erschopfungs-delirium*) should be regarded etiologically and clinically, and from the point of view of diagnosis and prognosis, as entirely apart from paranoia or chronic delusional insanity.

6. Mercier's term " fixed delusion " should be used for states secondary to acute forms of insanity, where the persisting delusions are not organized or progressively systematized.

7. With regard to terminal dementia in paranoia, it is trying to prove too much to say, as some authors do, that dementia does not even supervene in this condition; and he thinks that Kraeplin's action in removing a large group of diseases in which terminal weak-mindedness occurs, from the domain of paranoia to that of dementia precox is open to question. There seems to the writer a possibility that dementia precox with its hebephrenic, katatonic and paranoid forms, may become the new universal disease (" Universalkrankheit "), into which large numbers of cases may be thrown, and which will give rise at no distant date to as much discussion as has attended paranoia.

MENTAL SYMPTOMS ASSOCIATED WITH PERNICIOUS ANEMIA.

Pickett [2] reports five cases of pernicious anemia exhibiting mental symptoms. A composite picture of the mental disturbance in these cases presents a shallow confusion with impairment of ideas of time and place (disorientation) more marked on awakening from sleep. The patient fabricates, relating imaginary experiences of " yesterday " in a circumstantial way. Illusions, particularly of identity, are common. Hallucinations appear at times, pertaining to any of the senses. Based upon these illusions and hallucinations, persecutory delusions arise. These are usually transient, causing episodes of fear or agitation, but they may persist for considerable periods and be thus somewhat fixed; they may be even systematized, as in one of the cases described.

The pernicious anemia psychosis is mainly an abeyance of mind; it rarely presents that spontaneous excitement by which some types of confusion seem to merge into true mania; so that the term " amentia," in Meynert's sense, seems appropriate for it.

PSYCHOSES OF THYREOID ORIGIN.

Latarjet [3] lays great stress on the surgical treatment of these psychoses, stating that medical treatment by hygienic measures, drugs, etc., loses valuable time. Psychic disturbance is as much an indication for operation as the mechanical reasons, compression of the trachea or other neighboring organs. One remarkable case is detailed in a woman who had a small tumor on the left half of the thyreoid gland, and whose grave mental symptoms were entirely removed four days after removal of the tumor. Free drainage should be stimulated after these operations and sutures should not be immediately applied. Latarjet thinks a careful examination should be made of the thyreoid gland of all patients who begin to exhibit untoward mental symptoms.

[2] Am. Journ. Med. Sci., June, 1904.
[3] Lyon Med., Sept. 11, 1904. N. Y. Med. Journ., Oct. 22, 1904.

DELIRIUM OF INANITION.

Toupert and Lebret state [4] that this delirium has been known among the shipwrecked and in pregnant women attacked with uncontrollable vomiting. Their case occurred in a patient with gastric ulcer. After apparently improving under milk and vichy, kefyr, and ice on the epigastrium, the patient died suddenly, from some unknown cause. But few cases of this delirium are on record.

CRIMINALITY OF THE INSANE.

Angiolella [5] discusses the relation between insanity and crime, basing his views on a study of a series of criminal lunatics in the Nocea asylum. The number of such cases admitted in ten years was 115, which, compared with the total male receptions in the same period, gave a proportion of 3.99%. The number actually under treatment is 81, being 9.96% of the daily average of male patients. These proportions, he points out, though high, when it is borne in mind how the presence of such cases must interfere with the order and discipline of a general asylum, are extremely low considering the current ideas of the criminal tendencies of the insane.

Of the 115 cases 68 were lunatics who had committed crimes, and 47 were criminals who had become insane in prison.

Of the former category 33, or nearly half, were epileptics in the wide sense of the Italian school; 15 others were paranoiacs; 13 moral imbeciles; while recurrent mania and chronic mania accounted for two each, and hebephrenia, lypemania and hallucinatory delirium for one each. Thus criminal tendencies were chiefly associated with the insanities arising on a basis of degenerescence, and were hardly found at all in the pure pyschoneuroses.

Moreover, except in cases of paranoia, there is very rarely any apparent connection between the mental disease and the criminal act; of the twelve epileptics, for instance, who had actual convulsive attacks only six committed their offences in the dream state. And, though in cases of paranoia the victim of the lunatic's violence is generally the villain of his delusions, the interpretation of this fact is not, he holds, that the insanity caused the crime, but rather that the

[4] Press Med., Oct. 1, 1904.
[5] Il Manicomio, anno xix, No. 3, 1903. Journ. Ment. Sci., October, 1904.

aptitude for both lay in the individual's nature. The anomaly of character, in fact, which is the potentiality of paranoia, has considerable affinity with the essential anomaly of the moral lunatic and the criminal. And a further proof of this is found in the fact that the typical insanity of the criminal in prison is of paranoiac form; in the 47 cases, for instance, of insane prisoners in Angiolella's series, all but four were cases of paranoia. He maintains, therefore, that in general there is little difference between criminal lunatics and lunatic criminals; both are criminals with a psychopathic aptitude, and it is a question of environment and of the strength of the insane as compared with the criminal tendency whether crime or lunacy appears first.

Details of a number of the cases are given, as well as tables showing for the whole series the relation of the form of the delinquency to the form of insanity, the distribution of the cases in the several provinces, the cranial characters of the individuals, etc.

As regards the character of the delinquency, the series showed the usual predominance of homicidal offences, 78 out of the 115 being of this nature, while there were only eight crimes of acquisitiveness and four of lust. Special note is made of the fact that criminal tendencies seem to be more prevalent with paranoia than with epilepsy, there being 46 paranoiacs as against 19 epileptics among the homicides. And this is confirmed on comparing the criminal with the non-criminal inmates of the asylum, the proportion of criminal paranoiacs to paronoiacs in general being considerably higher than that of criminal epileptics to all epileptics.

Reports of Societies.

AMERICAN DERMATOLOGICAL ASSOCIATION.

Twenty-eighth Annual Meeting, Held at Niagara Falls, N. Y., June 2, 3, 1904.

First Day, Thursday, June 2.

The President, Dr. Joseph Zeisler of Chicago, in the Chair.

ADDRESS BY THE PRESIDENT.

In his address, Dr. Zeisler confined himself to various suggestions touching upon the future welfare of the Association.

RHINOPHYMA; A PATHOLOGICAL ANALYSIS OF FOUR SEPARATE TUMORS OCCURRING IN ONE PATIENT.

Drs. Grover W. Wende and Charles A. Bentz of Buffalo: The patient was a male who died at the age of sixty-nine years. For fifty years he had been a hard drinker of beer and spirits. When he was twenty years of age, he noticed a condition of congestion at the tip of his nose and upon his cheeks, usually following indulgence in drink, changes in temperature and overfeeding. The congestion was succeeded by an eruption of papules and pustules affecting the entire face. Several years later a bulbous enlargement invaded his nose. Up to the time of his death, no less than eight tumors had developed of which the two largest were attached to the nose by separate pedicles. The largest of the tumors measures four and three-quarters by three and one-half inches.

The changes in the tumors, those showing the beginning of the process, might be summarized, as follows: There was enlargement of the sebaceous glands, owing to hyperplasia of their cells and dilatation of the glands. Dilated blood vessels were numerous and conspicuous. There was an increased amount of cellular connective tissue, with very little elastic tissue. The tumors contained numerous plasma and mast cells. The epidermis lining the ducts of the sebaceous glands showed marked hyperkeratosis; many of them contained plugs of bacteria which stained by Gram's method. Some of the bacteria were micrococci, others were small bacilli, agreeing in size and shape with the bacilli described by Gilcrist for acne vulgaris. In the oldest tumor the sebaceous glands were atrophied, and had almost disappeared. The blood vessels were dilated and their outer coats thickened by the development of fibrous tissue. The bulk of the tumor consisted of dense, white fibrous tissue, with little elastic tissue. Dr. Wende said it was hard to tell whether infection had anything to do with the process in these cases. Although all authors seemed to find bacteria in the ducts of the tumors leading to rhinophyma, the same thing was true of ducts where there was no hypertrophy. If the bacillus of acne vulgaris was accountable for one condition, it might be claimed that it might also be the cause of rhinophyma in susceptible individuals.

GRANULOMA PYOGENICUM (BOTRYOMYCOSIS OF FRENCH AUTHORS).

Dr. M. B. Hartzell of Philadelphia stated that in 1897, in a communication to the French Congress of Surgery, Poncet and Dor reported four cases of a new growth which they believed represented a form of neoplasm not previously described as occurring in man. In two of these cases there was a small tumor upon the fingers, in the third the growth was situated upon the thenar eminence, and in the fourth upon the shoulder. These tumors were pea to nut sized fungoid masses, attached to the underlying parts by a slender pedicle, and upon section were found to be composed of inflammatory tissue having a very vascular fibrous stroma, throughout which were scattered yellowish granular masses. Microscopic and bacteriologic examination also revealed the presence of a micro-organism which when cultivated and inoculated into the ass, produced a growth similar to that from which it had originally been obtained. The authors concluded from their researches that this organism was identical with one found by Bollinger, in 1870, in certain inflammatory tumors occurring upon the scrotum and spermatic cord of the horse, the so-called fungus of castration (*champignon de castration*), and to which he had given the name botryomycosis, because of the mulberry-like mass produced by it in the tissues. They accordingly regarded these tumors as human botryomycosis, similar in all essential features to the equine disease.

During the past eighteen months, Dr. Hartzell said, he had seen four cases of this affection, two of which he had had the opportunity of studying more or less closely clinically, and one of them microscopically. He regarded it as a granulation tissue tumor, and the micro-organisms found in it were nothing more than the yellowish staphylococci of suppuration.

Dr. Augustus Ravogli of Cincinnati said that these eruptions of granulation tissue were not uncommon in cases of long-continued suppuration, especially in the negro race, and among people who were negligent and lacking in cleanliness. As regards their treatment, he

preferred the sharp curette, followed by an application of resorcin.

DR. HARTZELL, in reply to a question, said he believed that the so-called raspberry-like growths sometimes seen after vaccination belonged to the class of tumors described in his paper.

A PECULIAR ECZEMATOID ERUPTION OF THE LIP REGION.

DR. H. W. STELWAGON of Philadelphia: The eruption usually involved the lips and sometimes invaded the neighboring mucous membrane. It was of a somewhat dark red or violaceous red color, more or less marginate, with slight scaliness. The lesions were superficial or moderately infiltrated, suggesting objectively, to a varying extent, some of the features of seborrhoic eczema, lupus erythematosus, a superficial tubercular syphilide, and on the mucous membrane it presented some resemblance to lichen planus. When the case was well defined, with the circinate or segmented grouping tendency of the cutaneous eruption, and the peculiar involvement of the mucous membrane, one could not avoid at first glance the suspicion of syphilis, but the superficial character of the eruption, the absence of all destructive tendency, its evident benign character and its course and behavior negatived that conclusion. In the two instances especially suggestive in that direction he was led to put the patients experimentally upon anti-syphilitic treatment, with, if any effect, an aggravation rather than improvement.

DR. ZEISLER spoke of the resemblance of these cases to syphilis, and said he had never been able to entirely eradicate the idea that the eruption was a mixed affair, a mixture between seborrhoic eczema and syphilis, such as Unna some years ago had pointed out.

DR. H. G. KLOTZ of New York City reported a case which proved to be non-syphilitic, and in which he made the diagnosis of some irregular type of seborrhoic eczema.

DR. JOHN A. FORDYCE of New York City reported a case of very superficial squamous syphilide of the lip which was very similar to those described by Dr. Stelwagon.

DR. JAMES NEVINS HYDE of Chicago said he had long held that our clinical features of lupus erythematosus, good as they were, did not include all the varieties of that disease.

DR. JAMES C. WHITE of Boston said one often saw these puzzling eruptions about the mouth and upper and lower lips which closely resembled some forms of syphilis, eczema and lupus erythematosus, and it was sometimes very difficult to establish a clear diagnosis.

NOTES ON CERTAIN POST-VACCINAL ERUPTIONS.

WILLIAM T. CORLETT of Cleveland: The author stated that post-vaccinal eruptions might be provisionally divided into four classes: The first class contained those which were associated with or soon followed the subsidence of the vaccinal lesion. They might be subdivided into (*a*) deep-seated ulcerations at the site of inoculation, and (*b*) moist undermining of the epidermis at the periphery of the desiccating vaccinal lesion.

The second class contained the bullous eruptions.

The third class was represented by scaling forms which occurred usually several weeks after vaccination, and might or might not develop near the site of the inoculation.

A fourth class might possibly he added, including scrofuloderma and lupus.

The etiology of these post-vaccinal eruptions was doubtful, but the writer believed that they probably depended upon (*a*) impure vaccinal virus; (*b*) uncleanliness at the time of or during the vaccination process; and (*c*) possibly the local disturbance caused by the vaccinal process in a subject of low resisting power.

DR. J. F. SCHAMBERG of Philadelphia said that when we remembered how universal vaccination was, and that it produced not only a wound but an acute infectious disease, we would recognize that there must of necessity take place a certain number of eruptions which bore no relation to the vaccination excepting a chronological one. In Philadelphia, during the past year, one third of the population had been vaccinated, and among these, in the natural course of events, a certain number would have developed some kind of skin disease even without vaccination. There would seem, however, to be some relationship between the development of these bullous types of eruption and the operation of vaccination.

DR. DOUGLASS W. MONTGOMERY of San Francisco said he had always looked upon these bullous pustular lesions following vaccination as pyogenic affections.

DR. WILLIAM A. PUSEY of Chicago thought there was no doubt that vaccination bore a close etiological relationship to certain eruptions of the skin.

DR. JOHN T. BOWEN of Boston said that in a recent paper he had reported a number of cases of bullous eruptions following vaccination in children. Of this type he had seen altogether perhaps a dozen cases. He had also seen several of the same type which had not followed vaccination.

PARASITIC SYCOSIS COMMUNICATED FROM CATTLE: PRELIMINARY REPORT.

DR. W. F. BREAKEY of Ann Arbor, Mich.: The author described a number of cases of infection of the face and neck which was directly traceable to cattle. In one instance there was a severe inflammatory condition of the neck and face, chiefly on one side, and particularly involving the bearded portion; patches of the beard were already gone, leaving crusted, nodular masses, furuncular abscesses, burrowing sinuses and a brawny swelling reaching up to the ear and down on the neck. The mycelia and spores of the *tinea trichophyton barbae* were readily demonstrated in the roots and shafts of hair of the beard, and in the crusts and scrapings of the cuticle This patient was a young man who had charge of a herd of cattle which was affected with a disease of the skin and hairs. Other similar cases were reported, and photographs illustrating the condition were shown.

DR. FRANCIS J. SHEPHERD of Montreal said he had seen quite a number of these eruptions occurring in grooms who were infected by horses.

DR. RAVOGLI referred to similar infections from camels and sheep. Also from the domestic animals.

DR. HARTZELL mentioned a case of trichophytosis of the forearm in which the disease was contracted from a calf.

INSTABILITY OF VASCULAR EQUILIBRIUM IN RELATION WITH CERTAIN DERMATOSES.

DRS. JAMES NEVINS HYDE and MACEWEN of Chicago: The authors' conclusions were as follows: 1. There are morbid conditions of the integument of the hands and feet, usually described as separate diseases, which are really symptoms, differing in their features and in grades of intensity, directly resulting from instability of the vascular equilibrium. 2. Instability of vascular equilibrium is that condition in which there is interference with the normal and proper distribution of pressure within and about the arterioles, capillaries and venules of the human body. 3. The causes of instability of vascular equilibrium are numerous and dissimilar. They include ingested toxins (as in tobacco

and alcohol narcosis) and those elaborated in the system. As (*a*) in microbic disease (for example, in tuberculosis); (*b*) in perverted metabolism (as in gout); (*c*) in defective elimination (as in obstinate constipation). 4. The cutaneous symptoms of instability of vascular equilibrium are as numerous and dissimilar as the etiological factors effective in their production. They are for the most part associated with an augmentation of the secretion sweat, due (*a*) to constriction of arterioles under the influence of the vaso-constrictor nerves; (*b*) as a consequence of this, to increased intra- and extra-capillary pressure; (*c*) to increase in the quantity and acceleration of the stream of lymph about the sweat glands, which also receive stimulation from the sweat centers in the cord, the centers of the glands being excited by the factors influencing the constrictors of the arterioles. 5. Abnormal diaphoresis, in cases of embarrassment of the circulation, is directly related to a series of derangements in the process of keratinization, manifested both in the skin and in the nails; and evidence is not wanting to show that the organic changes in parts more deeply seated than the skin, including the periosteum and bone, may result from the same disturbance.

Dr. Thomas C. Gilcrist of Baltimore called attention to the fact that in certain skin diseases, there seemed to be a selective action upon certain cells of the blood; it was not often that all the various blood cells were found in the same type of lesion.

(To be continued.)

Recent Literature.

The Medical Record Visiting List or Physician's Diary for 1905. New Revised Edition. New York: William Wood & Co..

This visiting list is too well known to require an elaborate description. This edition has been carefully revised. The amount of matter likely to be useful in emergencies, and especially of therapeutic matter, has been increased; on the other hand elimination has been practised where possible without loss.

A Treatise on Bright's Disease and Diabetes, with Especial Reference to Pathology and Therapeutics. By James Tyson, M.D., Professor of Medicine in the University of Pennsylvania, etc. Second edition. Illustrated. Including a section on the Ocular Changes of Bright's Disease and in Diabetes. By George E. DeSchweinitz, M.D., Professor of Ophthalmology in the University of Pennsylvania, etc. Philadelphia: P. Blakiston's Son & Co. 1904.

The first edition of Dr. Tyson's Treatise on Bright's Disease and Diabetes was published in 1881, and has been out of print for many years. The present, second edition, has therefore been in large part rewritten and much enlarged. There are new sections on acute interstitial nephritis, and on the dietetic treatment of Bright's disease. The pathology and etiology of diabetes are still the subject of active discussion and investigation and are dealt with as such. There are full and accurate analyses of the more common diabetic foods, so-called. Original colored plates have been added in illustration of the pathology of Bright's disease, and in Dr. De Schweinitz's department in illustration of the ocular manifestations of Bright's disease and diabetes. The book is an octavo of 380 pages, is well presented, and will be found to meet well the wants of practitioners and students for a guide on the subjects of which it treats.

A Textbook of Clinical Diagnosis. By Laboratory Methods. For the use of Students, Practitioners, and Laboratory Workers. By L. Napoleon Boston, A.M., M.D., Associate in Medicine and Director of the Clinical Laboratories of the Medico-Chirurgical College, Philadelphia; formerly Bacteriologist at the Philadelphia Hospital and at the Ayer Clinical Laboratory of the Pennsylvania Hospital. Octavo volume of 547 pages, with 320 illustrations, many of them in colors. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Dr. Boston does not claim to have attempted to furnish more than a working introduction to the department of medicine under discussion — clinical diagnosis. He has confined himself to such laboratory methods as can be carried out with a minimum of complicated apparatus. In fact his aim has been to meet the needs and facilities of the busy practitioner in his office as well as those of the student in the laboratory. He has produced a book which may be regarded eminently as a practical and serviceable guide, sufficiently full and detailed for practical purposes, and clear withal, and has avoided the pedantic and cumbersome.

The paper and print of the book are excellent, the illustrations are both numerous and good and there are a very satisfactory table of contents and index.

The Medical News Visiting List for 1905. Philadelphia, New York: Lea Brothers & Co.

A pocket-sized, wallet-shaped book, containing memoranda and data important for every physician, and ruled blanks for recording every detail of practice.

This Visiting List is in its nineteenth year of issue, and embodies the results of long experience and study devoted to its development and perfection. It is issued in four styles to meet the requirements of every practitioner.

Saunders' Question-Compends. No. 3. Essentials of Anatomy; including the Anatomy of the Viscera. By Charles B. Nancrede, M.D., Professor of Surgery and Clinical Surgery in the University of Michigan, Ann Arbor. Seventh Edition, thoroughly revised. 419 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co., 1904.

In this seventh edition few changes have been made beyond a practical rewriting of the chapter on the nervous system.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, DECEMBER 1, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

THE NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

THE foundation of this association, which has long been awaited by physicians and laymen alike, has now taken definite form under auspices which insure its continuance. The directors of the association constitute a list of names from various parts of the country which represents the best that is being done toward the combating of tuberculosis. The president is Dr. Edward L. Trudeau who stands as the pioneer in the rational treatment of tuberculosis in this country. The names of Drs. Osler, Biggs, Bowditch, Flick, Jacobs, Otis, Ravenel, Welch and many others, appear as directors of the enterprise. On Nov. 16 a meeting of the Board of Directors of the association was held in New York, and hope was expressed on that occasion that the significance of the association be as widely disseminated as possible to the end that it might more definitely bring about the objects which it has in view.

The first annual meeting is to be held in Washington in May next. At this meeting it is proposed that two general sessions be held at which distinguished investigators in the subject of tuberculosis will speak. Following this more general work three sections, on the sociological, pathological and bacteriological, and clinical and climatological aspects of the subject, are to be constituted for the purpose of more detailed discussion. Each of these sections is to be presided over by a chairman especially known for his work in that field, and care will be taken that only papers of exceptional merit will be presented. This is a wise precaution, since tuberculosis, about which so many people know something, lends itself peculiarly to superficial consideration at the hands of imperfectly qualified persons. The meeting should bring together a large number of laymen and physicians who are interested in the struggle against tuberculosis. It is, however, not the intention of this association to limit itself to the holding of meetings at stated intervals, but rather to become the source and inspiration of the general crusade against tuberculosis by assisting in the formation of local societies, by giving advice, by spreading literature, and in general by encouraging any work which lies in its special field.

Headquarters have been established in the United Charities Building in New York, where an assistant secretary is in charge. Membership in the association may be obtained at an annual assessment of five dollars, and to such as join the association there will be sent free of charge the "Handbook of Tuberculosis," which is published by the New York committee of the Charity Organization Society, and also "The National Directory of Sanatoria, etc., for Consumptives," soon to be issued.

We need hardly say that we are in the completest sympathy with the work and the methods which this newly formed association represents. There can be no question that concentrated and systematic study of the problem which tuberculosis presents will in the very near future lead to results of the utmost importance. Such results have already been attained in various parts of the country by smaller organizations, but the concentration of effort which this association stands for cannot fail to carry the matter much further than is possible by individual effort, or by the efforts of small bodies of persons however enthusiastic they may be.

THE RELATION OF ALCOHOL TO ARTERIOSCLEROSIS.

DR. RICHARD C. CABOT presented a paper[1] at the last meeting of the American Medical Association in which he gives the results of his study of this question. He first investigated how many cases of arteriosclerosis not referable to syphilis or to advancing age are to be found among alcoholics; and, secondly, endeavored to determine in what proportion of cases of relatively early arteriosclerosis of the peripheral arteries alcoholism was present.

The material for studying the first part of the problem was derived from the Bridgewater State Farm and the Foxboro Asylum for Diplomaniacs;

[1] Reprint from the Journal of the Association, Aug. 17, 1904.

that for the second part was found in the wards of the Massachusetts General Hospital.

Dr. Cabot then consulted the records of the pathological laboratories of the Boston City Hospital and of the Massachusetts Hospital. The results of these last investigations are tabulated, and Dr. Cabot sums up his conclusions as follows:

1. Only 6% of 283 cases of chronic and excessive alcoholism under fifty years of age showed any evidence of arteriosclerosis.

2. Of 45 cases of arteriosclerosis examined by him at the Massachusetts General Hospital, only 13% gave any history of alcoholism.

3. Of 656 autopsy cases of arteriosclerosis, only 95 or 14.5% were under the age of fifty.

4. Out of these 95 cases under fifty, in which arteriosclerosis was found post-mortem, only 21%, and if we exclude cases complicated by chronic nephritis, only 17% appear to have consumed alcohol in any notable excess.

Finally the case is cited of a well known young Bostonian, who deliberately drank himself to death at the age of thirty-six. For the previous ten years of his life he had been in the habit of taking one or two quarts of whiskey a day for about eight months in the year. At the post-mortem examination particular attention was paid to the condition of the arteries, and they were found to be entirely normal.

Dr. Cabot was led to make his investigation by the prevalent belief in the dependence of arteriosclerosis on alcoholism, and the unconditional assertion of most standard text-books and standard treatises on the heart and blood vessels of the importance of the excessive use of alcoholic liquors in the production of arteriosclerosis.

It is doubtless profitable at times to turn over our beliefs and reinspect the foundations on which they rest, and the more hoary these are the more profitable is the pursuit sometimes likely to be.

THE STUDY OF EPILEPSY.

The fourth annual meeting of the Association for the Study of Epilepsy met in this city last week. Although the sessions lasted only through an afternoon and evening, a number of papers of much significance were read and a stimulus provided for continued work on this widely prevalent disease. However much some persons may object to the tendency toward specialism, it is evident that the best work in any field can only be attained by the devotion of a large number of men to the various problems which that particular subject presents. The gradual development in this country of colonies for epileptics, long in successful operation in Europe, has accomplished many definite results through the study of groups of cases and the determination of efficiency of various methods of treatment which hitherto has been quite impossible. The impression one had from attendance at the meetings of the society was in the first place that the disease is still elusive, and that in spite of progress its genesis and real character remain obscure. One, however, could not fail also to be impressed with the fact that a considerable body of men is now at work upon the problem in such a spirit that results of positive importance will soon be forthcoming. Through the work of Clark and Prout light is being thrown into the dark places of its pathology, and on the practical side rational treatment is by degrees taking the place of empiricism. This meeting of the association, under the presidency of Dr. William N. Bullard, must be recognized as another step toward the solution of the great problems connected with this peculiarly unfortunate class in the community. We are glad also to note that the association is to make an attempt to include the epileptics in the census returns hereafter, which should do much toward framing the exact problem with which we have to deal. The number of epileptics is recognized as very great, certainly sufficient to justify a separate enumeration.

MEDICAL NOTES.

A National Convalescent Home. — It is reported that Mr. Andrew Carnegie has purchased Lea Park, one of the most beautiful estates in the south of England, for which he paid upwards of three million dollars. His intention is to convert the place into a national convalescent home for which it appears to be well fitted.

Death of Dr. Thomas M. Drown. — The death of Dr. Thomas M. Drown, President of Lehigh University, occurred Nov. 16, at the age of sixty-two, at Bethlehem, Pa. Although not closely identified with medicine during the last years of his life, he was graduated at the medical department of the University of Pennsylvania in 1862, thereafter entering the army as surgeon and later prosecuting his studies abroad. Returning from Europe, he occupied successively the position of instructor in metallurgy in Harvard College, professor of chemistry in Lafayette College, and for the ten years from 1885 to 1895 a similar position in the Massachusetts Institute

of Technology. In 1895 he accepted the presidency of Lehigh University where he was active up to the time of his death. He was a man of much force and personal popularity, and his somewhat untimely death will be a source of regret to various classes in the community.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Nov. 30, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 43, scarlatina 22, typhoid fever 16, measles 12, small pox 0.

REGISTRATION IN MEDICINE. — The last examination held for registration in medicine in Massachusetts resulted in success for forty-one of the sixty-eight candidates examined. It is said that 40% of failures is approximately the average for the November examination, since a number of candidates who have previously failed usually reapply at this time.

OPENING OF NEW BUILDING FOR INDUSTRIAL SCHOOL FOR CRIPPLED CHILDREN. — A new school building on St. Botolph Street for the Industrial school for Crippled and Deformed Children was formally opened to-day. The building has been planned to meet the requirements of the partially disabled children who attend the school, and should prove a great addition to the facilities hitherto provided for their training.

NURSES IN THE PUBLIC SCHOOLS. — A movement is on foot in this city to consider the desirability of providing nurses for public schools to supplement the medical inspection which is already practiced. Such a plan is said to have been in working operation in New York whereby nurses visit with regularity a certain number of schools, devoting such time to each as is necessary for the care of the minor ailments met with. The work of such nurses also extends to the homes of the pupils where instruction is given to mothers in the care of sick children. We see no reason why such a plan, under proper supervision, should not be of distinct service in combating the ailments met with in our public schools.

BOSTON MORTALITY STATISTICS. — The number of deaths reported to the Board of Health for the week ending Nov. 26, was 212, as against 188 the corresponding week last year, showing an increase of 24 deaths, and making the death-rate for the week 18%. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 36 cases, 3 deaths; scarlatina, 23 cases, 1 death; typhoid fever, 18 cases, 7 deaths; measles, 9 cases, 1 death; tuberculosis, 42 cases, 26 deaths; small pox, no cases, no deaths. The deaths from pneumonia were 43; whooping cough, 2; heart disease, 17; bronchitis, 9; marasmus, 4. There were 8 deaths from violent causes. The number of children who died under one year was 33; under five years, 51; persons over sixty years, 65; the deaths in public institutions, 60.

NEW YORK.

SITE FOR CONSUMPTIVES' SANATORIUM DENIED. — The board of supervisors of Sullivan County exercising the discretionary powers granted such boards at the last session of the Legislature, have denied the application of the City of New York for permission to locate a sanatorium for consumptives at Mamakating in that county.

ADULTERATED MILK. — Dr. Gordon Dickinson, President of the Jersey City Board of Health, in announcing the relinquishment of the endeavors by his department to stop the sale of adulterated milk, makes the following statement: "We have done our best, as city officials charged with the care of the public health, to prevent unscrupulous dealers from doctoring their milk with formaldehyde. We find it impossible to secure juries that will punish dealers who sell milk not up to the standard. For the present at least, we shall drop the crusade against impure milk and permit people to drink it if they want to."

ATMOSPHERIC CONDITIONS IN THE SUBWAY. — Professor Chandler has made a report to the Board of Health in regard to the atmospheric conditions in the subway, but this is not regarded by President Darlington as a final and official endorsement by the departments. Having presented a detailed statement of his investigations, Dr. Chandler says that the results of the studies and analyses thus far made satisfy him that the air of the subway is entirely satisfactory, and that there is no cause for complaint as to its present condition or alarm for its future condition. In regard to the suggestion which has been made that the subway will sooner or later become charged with dangerous bacteria, he states that the only bacteria that find their way into it are such as are met with in the atmosphere above ground and in the houses of the city, and that it cannot be said that the subway air will be a breeding place for bacteria, since these

cannot multiply in the absence of water, and the subway is and probably will continue to be substantially dry. In conclusion, Dr. Chandler says he will continue his investigations with careful determination of the amount of carbonic acid gas in the atmosphere of the subway, and also with regard to the extent to which the air is renewed by the entrance of fresh air into the various openings. As regards the carbon dioxide, the high percentage of oxygen already demonstrated indicates pretty conclusively that there cannot be any great increase of the poisonous gas.

Miscellany.

MEDICAL AND SURGICAL FEATURES OF THE RUSSO-JAPANESE WAR.

At a meeting of the county branch of the New York State Medical Association, held Nov. 21, Dr. Louis L. Seaman, who was surgeon of the Volunteer Regiment of Engineers in the Spanish-American War and who has recently returned from a tour of observation in the East, read a paper on "The Medical and Surgical Features of the Russo-Japanese War." His observations tended to show what could be accomplished by absolute cleanliness and the proper care of the stomach of the fighting soldier. Of the more than one thousand wounded received in Tokyo prior to July 1, he said, not one case had ended fatally, and every patient remaining in the wards presented a favorable prognosis. It is the rule of the Japanese surgeons at the front to do little or no operating, except in cases of extreme emergency, as where hemorrhage threatens immediate death. All cases are treated by the application of the first aid dressing, and then sent to the rear as quickly as possible, thence by hospital boat or transport to the base hospitals in Japan. The Japanese soldier has been taught how to treat his intestines, and consequently his intestines are now treating him with equal consideration. His plain, rational diet is digested, metabolized and assimilated. It is not an irritating, indigestible, fermenting mass, acting as a local irritant and producing gastritis and the long list of inflammatory intestinal and hepatic processes with which all were familiar in the hospital wards at Camp Alger, Chattanooga, Tampa, Montauk Point, and in Cuba and Porto Rico. The three great lessons to be learned from the Japanese are from the medical, the commissariat and the transport departments. The Japanese authorities permitted our government to send five military attachés to accompany their army in the field; yet among those detailed for this duty there was not a single surgeon, quartermaster or commissary officer. The killing departments got the appointments, while representatives of the life-preserving departments were entirely omitted.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 19, 1904.

Cities.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Diarrheal Diseases.
New York . .	3,998,844	1,232	300	22.97	—	2.92	1.46	3.16
Chicago . . .	2,021,066	479	130	22.55	13.78	1.67	1.67	3.55
Philadelphia .	1,407,988	401	87	31.94	17.70	2.99	1.99	2.24
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	549,239	190	48	9.47	13.15	2.10	3.62	.53
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	409,845	—	—	—	—	—	—	—
Pittsburg . .	383,403	137	—	21.17	24.09	7.30	2.19	4.38
Cincinnati . .	358,977	—	—	—	—	—	—	—
Milwaukee . .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	51	11	9.80	19.60	1.96	—	1.96
Boston . . .	617,350	199	48	17.08	18.09	3.51	1.10	1.50
Worcester . .	156,935	39	11	10.34	17.24	—	3.45	6.90
Fall River . .	119,349	31	7	38.57	14.28	—	—	14.28
Lowell . . .	104,409	33	2	12.12	18.18	3.03	—	3.03
Cambridge .	100,998	27	9	18.51	11.11	—	—	7.40
Lynn	73,878	20	4	20.00	—	—	—	—
Lawrence . .	73,848	18	4	27.77	22.22	—	5.55	5.55
Springfield .	73,030	—	—	—	—	—	—	—
Somerville .	70,413	15	3	13.33	33.33	—	6.67	—
New Bedford	68,883	19	7	10.53	5.26	—	—	—
Holyoke . . .	50,338	—	—	—	—	—	—	—
Brockton . .	46,801	10	3	10.00	10.00	—	—	—
Newton . . .	39,810	4	1	—	—	—	—	—
Haverhill . .	39,061	13	1	15.40	—	—	—	—
Malden . . .	37,305	12	4	41.65	25.00	—	8.33	—
Salem	37,188	13	4	23.10	—	7.70	7.70	—
Chelsea . . .	36,499	18	1	16.67	5.55	5.55	—	—
Fitchburg . .	36,335	9	3	—	11.11	—	—	—
Taunton . . .	34,577	—	—	—	—	—	—	—
Everett . . .	30,906	8	—	—	—	—	—	—
North Adams .	29,901	6	1	66.67	—	16.67	16.67	—
Quincy . . .	26,798	9	3	—	33.33	—	—	—
Gloucester .	26,121	13	4	—	—	—	—	—
Waltham . .	25,797	4	1	—	25.00	—	—	—
Brookline . .	23,870	9	—	—	—	—	—	—
Pittsfield . .	23,870	7	1	—	—	—	—	—
Medford . .	21,956	3	—	—	—	—	—	—
Chicopee . .	21,692	3	1	—	—	—	—	—
Northampton	20,314	8	4	—	—	—	—	—
Beverly . . .	15,807	4	—	—	—	—	—	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	1	—	—	—	—	—	—
Adams . . .	14,748	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,509	4	2	—	—	—	—	—
Newburyport	14,478	—	—	—	—	—	—	—
Woburn . . .	14,315	4	—	—	25.00	—	—	—
Melrose . . .	13,819	2	—	—	—	—	—	—
Wesfield . . .	13,809	3	—	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	2	0	—	—	—	—	—
Revere . . .	13,609	3	2	—	33.33	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody . .	13,408	—	—	—	—	—	—	—
Gardner . .	13,324	2	—	—	—	—	—	—
Southbridge .	11,716	2	1	50.00	—	—	—	50.00
Watertown .	11,575	5	1	—	40.00	—	—	—
Weymouth .	11,350	4	1	50.00	—	50.00	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,051; under five years of age, 698; principal infectious diseases (small pox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 614; acute lung diseases 282, consumption 316, scarlet fever 21, whooping cough 4, cerebrospinal meningitis 14, small pox 2, erysipelas 5, puerperal fever 12, measles 15, typhoid fever 32, diarrheal diseases 86, diphtheria and croup 84.

From whooping cough, New York 1, Chicago 3. From measles, New York 7, Chicago 4, Pittsburg 4. From scarlet fever, New York 15, Chicago 1, Philadelphia 1, Baltimore 3, Lawrence 1. From cerebrospinal meningitis New York 13, Baltimore 1. From small pox, Chicago 2.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Nov. 5, the death-rate was 14.9. Deaths reported 4,372; acute diseases of the respiratory organs (London) 158, whooping cough 34, diphtheria 72, measles 109, small pox 2, scarlet fever 58.

The death-rate ranged from 5.8 in Croydon to 23.8 in South Shields; London 14.9, West Ham 15.0, Brighton 16.1, Southampton 10.2, Plymouth 17.4, Bristol 14.9, Birmingham 17.3, Leicester 13.3, Nottingham 14.3, Birkenhead 13.6, Liverpool 20.0, Wigan 12.5, Bolton 14.5, Manchester 15.8, Salford 16.9, Halifax 11.6, Bradford 15.2, Leeds 14.8, Sheffield 14.3, Hull 17.0, Newcastle-on-Tyne 15.5, Cardiff 12.7, Rhondda 12.8, Hornsey 6.4, Merthyr Tydfil 7.9.

METEOROLOGICAL RECORD.

For the week ending November 19, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	Rainfall in inches.
S.. 13	29.76	40	45	36	71	96	84	S W	N E	9	20	R.	R.	1.18
M. 14	29.44	38	41	34	70	58	64	N W	N W	28	18	O.	C.	.38
T.. 15	30.10	42	49	34	60	60	60	W	W	16	8	C.	C.	0
W . 16	30.16	42	49	34	64	60	62	W	N W	10	18	O.	N.	T.
T.. 17	30.56	28	34	21	34	70	52	N	N	17	9	C.	C.	T.
F.. 18	30.35	26	34	17	70	72	71	N	N	11	9	O.	C.	0
S.. 19	30.10	36	50	23	54	41	48	N W	W	8	9	C.	C.	0
☞	30.07		43	28			66							1.56

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING NOVEMBER 16, 1904.

GASSAWAY, J. M., surgeon. Granted leave of absence for four days from Nov. 23. Nov. 12, 1904.

YOUNG, G. B., passed assistant surgeon. Granted leave of absence for one month, or so much thereof as may be necessary, on account of sickness. Nov. 15, 1904.

GRUBBS, S. B., passed assistant surgeon. Granted leave of absence for six days from Nov. 14. Nov. 11, 1904.

ANDERSON, J. F., passed assistant surgeon. Granted extension of leave of absence for three days from Nov. 16. Nov. 12, 1904.

CURRIE, D. H., passed assistant surgeon. To proceed to Merced, Cal., for special temporary duty. Nov. 10, 1904.

STEGER, E. M., assistant surgeon. Granted leave of absence for four days from Nov. 9, 1904, under paragraph 191 of the regulations.

HALLETT, E. B., acting assistant surgeon. Granted leave of absence for two days from Nov. 23. Nov. 12, 1904.

STEARNS, H. H., acting assistant surgeon. Granted leave of absence for thirty days from Dec. 2. Nov. 15, 1904.

COOK, B. J., acting assistant surgeon. Granted leave of absence for eighteen days from Nov. 19. Nov. 15, 1904.

DAVIS, H. E., pharmacist. Department letter of October 13, 1904, granting Pharmacist Davis leave of absence for fifteen days from Oct. 26, 1904, amended so that said leave shall be for 12 days only. Nov. 5, 1904.

BOARDS CONVENED.

Board convened to meet at the Marine Hospital, Port Townsend, Wash., Nov. 21, 1904, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the Board: Passed Assistant Surgeon J. H. Oakley, chairman; Passed Assistant Surgeon D. E. Robinson, recorder.

PROMOTIONS.

DUNLOP MOORE, assistant surgeon. Commissioned as passed assistant surgeon, to rank as such from June 4. Nov. 11, 1904.

CARROLL FOX, assistant surgeon. Commissioned as passed assistant surgeon, to rank as such from July 27. Nov. 11, 1904.

MATTHEW K. GWYN, assistant surgeon. Commissioned as passed assistant surgeon, to rank as such from Aug. 8. Nov. 11, 1904.

CHARLES W. VOGEL, assistant surgeon. Commissioned as passed assistant surgeon, to rank as such from July 27. Nov. 11, 1904.

REMOVAL.

C. E. D. LORD, removed from the position of assistant surgeon in the Public Health and Marine-Hospital Service, Nov. 15, 1904.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING NOVEMBER 26, 1904.

M. E. LANDO, assistant surgeon. Ordered to the Naval Hospital, Mare Island, Cal.

C. K. WINN, acting assistant surgeon. Ordered to the Naval Hospital, Norfolk, Va.

H. T. NELSON, Jr., assistant surgeon. Appointed assistant surgeon, with rank of lieutenant, junior grade, from Nov. 14, 1904.

T. A. BERRYHILL, surgeon. Detached from the "Baltimore" and ordered to the "Oregon."

O. DIEHL, surgeon. Detached from the "New Orleans" and ordered to the "Baltimore."

R. P. CRANDALL, surgeon. Detached from the "Oregon," and ordered to the "New Orleans."

H. T. NELSON, Jr., assistant surgeon. Ordered to the Naval Hospital, Washington, D.C.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—There will be a meeting of the Society at Sprague Hall, Medical Library, on Monday Dec. 5, 1904, at 8.15 P.M. Subject, Ocular Strain. The following short papers will be presented: Dr. Myles Standish: Eye strain as a factor in functional nervous disabilities. Dr. E. E. Jack: In what cases should eye strain be suspected? Dr. Allen Greenwood: Eye strain as a factor to be considered in children backward in their studies. Dr. H. W. Kilburn: Eye strain considered as a factor in the production of lateral curvature of the spine. Dr. H. H. Haskell: The relation of nasal conditions to eye strain. Dr. F. M. Spalding: Some difficulties encountered in the prescription of glasses. Dr. E. W. Clap: The relation of eye strain to neurasthenia. Business: Election of a nominating committee. Report of the Prudential Committee on the future of the society. There will be a social half hour after the meeting. All members of the profession are invited to be present.

ARTHUR K. STONE, M.D., *Secretary.*
CHARLES M. GREEN, M.D., *President.*

BOSTON MEDICAL LIBRARY MEETINGS.—The Boston Medical Library in conjunction with the Suffolk District Branch of the Massachusetts Medical Society will hold a meeting on Wednesday, Dec. 7, 1904, at 8.15 P. M., at the Library, 8, The Fenway. Program: The Humane Treatment of Malignant Disease from a Surgical Point of View, Dr. John C. Munro. Discussion: To be opened by Dr. D. W. Cheever, Dr. R. H. Fitz, Dr. A. T. Cabot, Dr. F. B. Lund. Light refreshments at the end of the meeting. Drs. George W. Gay, Fred B. Lund, Elliott P. Joslin, Committee on Medical and Social Meetings.

PAN-AMERICAN MEDICAL CONGRESS.—Physicians desiring to contribute papers upon Internal Medicine at the next meeting of the Pan-American Medical Congress which meets at Panama, Jan. 2-6, 1905, will kindly send titles at their earliest convenience to the Secretary of the Section on Medicine, Dr. Judson Daland, 317 South 18th Street, Philadelphia, Pa.

FOURTH PAN-AMERICAN MEDICAL CONGRESS.—Dr. Rudolph Matas, of New Orleans, Secretary of Section of General Surgery for the United States, informs us that an arrangement with the United Fruit Company has been perfected by which a steamer of this line will leave New Orleans for Colon on Wednesday, Dec. 28, 1904, at 10 A.M. (instead of Friday, Dec. 30, at 11 A.M. as previously announced) which will reach Colon (Panama) on Monday, Jan. 2, 1905, the opening day of the Congress. In view of the facilities offered to reach Panama via New Orleans it is expected that many will choose this route and those who intend to do so will please forward their names to Dr. R. Matas, Secretary of Section of General Surgery, 2255 St. Charles Ave., New Orleans, La., not later than Dec. 22, 1904.

RECENT DEATH.

NELSON L. NORTH, M.D., a prominent physician of the Eastern District of Brooklyn, N. Y., died on Nov. 23 from pulmonary hemorrhage. He was born in Elba, N.Y., April 20, 1830, and was graduated from the College of Physicians and Surgeons, New York, 1854. All his professional life was passed in Brooklyn. For three years he was physician to the Williamsburgh Dispensary, and from 1857 to 1865 was consulting physician to that institution. He was also consulting surgeon to the Methodist Episcopal Hospital and to the South Third Street Industrial Home. From 1861 to 1869 he was surgeon to the Metropolitan police. At one time he contributed considerably to medical literature, and among the subjects on which he wrote was Asiatic Cholera and the cause and treatment of inflammation. He is survived by a son, Dr. Nelson L. North, Jr., a well-known specialist in diseases of the eye.

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheater of the Boston City Hospital on Dec. 2, from 10 A.M. until 12.30 P.M.: Radical Cure, Inguinal Hernia; Coeliotomy, removal abdominal tumor; Plastic operation for hypospadias; Radical Cure of Umbilical Hernia; Excision of Epithelioma Lip; Excision of Carious Rib; Radical Cure, Inguinal Hernia, — the sac of which contains bladder.

Clinical Lecture.

CLINICAL LECTURE ON URETHRAL STRICTURE DELIVERED AT THE BOSTON CITY HOSPITAL TO FOURTH YEAR HARVARD MEDICAL STUDENTS.*

BY F. S. WATSON, M.D., BOSTON.

GENTLEMEN:

In a general sense stricture means a narrowing in the course of the urethral canal irrespective of the nature of the condition which causes it. Thus we speak of several sorts of stricture, *viz.*, spasmodic, inflammatory and organic. The last of these is the only one which is stricture in the true, strict meaning of the term, and it is to that variety that what I have to say will be confined for the most part.

DEFINITION OF ORGANIC STRICTURE.

Organic stricture is a narrowing of the urethral canal at one or more points, due to the formation of connective tissue in or beneath its mucous membrane, or in both places, which results either from injury — in which case the stricture is called "traumatic" — or from a preceding chronic inflammatory process, the latter being almost invariably of gonorrheal origin.

The tissue changes incident to the formation of the fibrous tissue which constitutes stricture have been described to you in a former exercise, and we will not therefore go over that ground again, but will assume that stricture has already become organized, and proceed from that point.

The connective tissue forming the stricture varies in amount and in the depth and extent of the structures involved by it, and also in the manner of its distribution, in different cases, and

FIG. 1.

according to the one or the other of these elements there occurs a corresponding variation in the form, extent and quality of the stricture.

* All instruments referred to in the text were shown to the students in the lecture and the manner in which they should be used was demonstrated.

Strictures are divided for the sake of description, into three principal classes, *viz.*, linear, annular and tortuous or innodular. These forms may be illustrated thus:

Picture to yourselves the urethra as a rubber tube. Tie a thread around the outside of it at some point, and you will have produced, of course, a circular, narrow constriction on the inside, of greater or less degree, according to the tightness with which the thread has been drawn. This is linear stricture.

Linear stricture as it progresses, takes the form of a delicate membrane stretched across the canal. The opening through it may be either central or on one side of the membrane. This variety of stricture does not invade the submucous or periurethral tissues.

Now instead of a thread, tie a bit of tape around the outside of the tube, and you have made an annular stricture.

FIG. 2.

This form varies in its width, may extend over a considerable area, may or may not involve the submucous and periurethral tissues.

Next think of the tube as being subjected to varying degrees of pressure from different points of its outer surface, and you will see that there will be a series of irregular projections produced in its interior, occupying more of the canal at one place, less at another, and necessarily giving a twisted or tortuous course to the channel running through the strictured part of the urethra. This represents a tortuous stricture.

Further descriptive names are given to strictures to designate certain special qualities which they present, thus: of recent formation, of long standing, dense or resistant, tough, hard, intractable, irritable, resilient, of large or small caliber, etc.

The resilient stricture is one which after being dilated, rapidly recontracts to its former size.

The dividing line between strictures of wide and small caliber is an arbitrary one; usually

anything larger than twenty-two of the French scale is termed stricture of wide, anything smaller than that number, of narrow caliber.

FIG. 3.

NUMBER — LOCATION.

Theoretically there may be as many strictures in the urethra as there is space in it to accommodate them, practically as many as fourteen have been found in one case.

As has been said there is a preference shown by strictures to choose certain parts of the urethra for residence rather than others. The reasons for this are: (*a*) The presence of points of natural narrowing of the canal as compared with wider portions immediately behind them, in consequence of which there is a less free exit offered to the products of inflammation which, being in some part retained, perpetuate by their irri ating character the chronic process from which they originate. (*b*) The relatively greater vascularity of some parts of the canal than others, which tends to the establishment of areas of congestion in these localities. (*c*) The existence of a larger proportion of follicular and glandular structures in some parts of the urethra than in others, in consequence of which, as has been shown in a former lecture, there is a tendency of the chronic inflammatory processes to become localized there.

STRICTURE OF THE DEEP URETHRA.

It has been asserted by some observers that stricture of the membranous urethra does not result from gonorrhea, but is due to traumatism alone, the reason assigned for this being the absence of glandular structures in that portion of the urethra. On the other hand it is claimed that the membranous urethra is more frequently the seat of gonorrheal stricture than any other part of the canal. In a recent article by Bazy and Decloux there is given the description of some cases in which stricture of the membranous urethra, originating in gonorrhea, was present, and demonstrated by microscopic examination of post-mortem specimens, but in these instances it was shown that the strictures began in the bulbous urethra and had subsequently extended back to the membranous portion.

Stricture of the prostatic urethra has not been observed. The reasons assigned for this have never appeared to me to be altogether satisfactory, and I shall content myself with simply noting the fact of the failure of the condition to exist in this locality, and pass on directly to the clinical side of the subject, which I am able to illustrate to-day by several cases.

Here is a man of forty-five years of age who at different periods during the past twenty years has had attacks of gonorrhea of varying duration.

The last of them, which was contracted two years ago, has continued in a chronic form ever since. The principal symptom being a slight gleety discharge from the meatus, usually most noticeable in the mornings, at times seen only then, with occasional exacerbations following excessive sexual indulgence.

There has been no narrowing of the urinary stream or other change in its character until about six months ago, at which time he began to notice a slight diminution in its size, and in the force with which it was expelled. This condition has gradually increased up to the present time, though as yet the degree of narrowing has not been important, and he still passes a fairly good sized stream. A slight frequency of urination, most marked during the day time, has also been present for about the same length of time, and finally there has been a noticeable dribbling of urine after the apparent completion of micturition.

This patient presents, typically, the classic symptoms of the early stages of stricture.

It has been asserted that a chronic gleet is a certain sign of stricture. It is more true to say that it is frequently an evidence of this condition. It should invariably excite suspicion of it, but it may exist without stricture, and conversely stricture may be present without giving rise to gleet; in the former case the gleety discharge is frequently furnished from the seminal vesicles, or from Cowper's glands, or even in a few cases, by long persisting areas of chronic inflammation, more especially in the prostatic urethra where, as we have said, stricture is never found.

When stricture is present without the occurrence of gleet, it is usually in cases in which the contraction is of long standing. The rapidity with which stricture forms subsequent to gonorrhea varies in different cases, and has been claimed to be as long as twenty years in a few instances. It seldom occurs much under two years and the average is perhaps about three and a half or four years. In traumatic stricture it occurs much more quickly, owing to the greater destruction of tissue which takes place in those cases, and the correspondingly large amount of connective tissue formed. In passing I may note here the fact that the large number of injuries inflicted from without upon the urethra, fall upon the membranous and

bulbo-membranous part of the canal, hence the great majority of traumatic strictures are here.

If left to itself stricture continues to contract more or less rapidly until no urine can be passed through it, and we have the condition known as urinary retention. Before this occurs, or at times coincident with it, there may be a rupture of the urethra, behind the stricture, through which the urine escapes into the peri-urethral tissues and burrows in them to a greater or less extent, producing in many instances violent septic inflammation.

According to the more widely accepted belief at present the rent in the urethra is produced from without inward, by the rupture into it of an extra-urethral abscess, usually originating in the glands of Cowper, or others in the neighborhood of the bulbous or prostatic portions of the canal, the escape of urine taking place secondarily, and being the consequence, and not the cause, of the suppuration in the peri-urethral and other more distant tissues. Others again consider that this condition may arise quite independently of the presence of urine in the tissues at all, and that it is an acute diffuse phlegmonous inflammation.

In whatever way it takes place, it represents the condition ordinarily called urinary extravasation or infiltration. These, the two most important complications of stricture, namely: retention and extravasation, I shall not refer to in this lecture but will confine myself to the treatment of the condition after the actual formation of stricture has occurred, with a word about the methods of examining the urethra for the purpose of establishing the diagnosis and in order to accurately locate the obstruction, estimate their caliber and number. (Four members of the class were then called from the seats and given the opportunity to examine the urethras of two patients with strictures.)

EXAMINATION.

Two instruments are used to detect stricture of the anterior urethra, the acorn tipped sound or *bougie a boule*, and the urethrometer.

The former gives the most characteristic sense to the fingers, the latter measures more accurately the caliber of the stricture. In the first case there are three well-marked strictures of the anterior urethra. You will feel the shoulder of the acorn tip, as it is withdrawn, after being passed into the part of the urethra behind the strictures, give a sharp jump upon going over them. The sensation is much the same as if the butt of the tip were drawn across the stretched web between the thumb and forefinger. Nothing but organic stricture feels like this, and once felt is not to be forgotten.

The distance of the stricture from the meatus is readily measured by placing the thumb nail upon the stem of the instrument as it emerges from the meatus at the moment when the shoulder of the tip has come in contact with the posterior face of the stricture. The distance between these two points measured after withdrawing the instrument is that of the stricture from the meatus.

Strictures of the membranous urethra are, as has been said, relatively few. That part of the canal is but three quarters of an inch in length, consequently we may estimate stricture of that locality accurately enough for practical purposes by means of the conical steel sound.

There is one frequent source of error in examining this part of the urethra for stricture, *viz.*, spasm of the compressor urethræ muscle, which is often produced by the presence of the sound. It may be distinguished from organic stricture in the following manner: If the sound is warm, well lubricated, and is gently and steadily held against the obstacle opposed to its entrance into the membranous urethra, the latter will presently relax and allow the instrument to pass through easily if it is due to spasm, whereas it will not do so if it be organic stricture. Also in its passage in cases of spasm, the membranous urethra alternately relaxes and contracts upon the sound, and conveys in so doing a series of jerky, twitching sensations to the fingers. The feeling given by an organic stricture to the fingers is as if the instrument were being drawn through a sticky substance which grasps it more or less tightly but steadily.

TREATMENT.

There is no palliative treatment for organic stricture. The object of all treatment is the restoration of the canal to its normal caliber, and that method which accomplishes this most safely, most efficiently and most permanently is the best. There is, however, no one method which fulfils all these conditions for all cases.

The question which meets us at the outset is, What is the normal caliber of the urethra? Personally I am a strong believer in the views held by the late Dr. Fessenden Otis of New York. Briefly put, his conclusions were as follows:

Urethras are not all of one size any more than noses are! There is, however, an average size for them and it is a caliber of 32 of the French scale.

The size of the meatus is not a measure of the urethra behind it. The average meatus is about 22 of the French scale. It is rarely as large as the urethra to which it belongs.

There is a definite relation between the circumference of the flaccid penis and the caliber of the urethra within it.

This ratio Otis found to be as follows:

A penis with a circumference of 3 inches has a urethra with a caliber of 30 of the French scale. With each quarter of an inch increase in the circumference of the former, there is a corresponding increase of 2 mm. in the urethral caliber. There are more urethras showing a variation above the average size, 32 mm., than there are below it.

METHODS OF TREATMENT.

There are five ways in which stricture may be treated, *viz.*, By dilating (or stretching), by splitting, by cutting through, cutting out and by

the application of an electric current. These methods are called, respectively, dilatation, divulsion, urethrotomy, resection and electrolysis.

Dilatation is divided into three kinds: Rapid, continuous and gradual. The last is the only one of them that need be referred to in detail.

Gradual dilatation consists in the dilatation of the stricture by the passage through it of successively increasing sizes of special instruments, called sounds or bougies, at intervals of time of of varying lengths, until the canal has been opened to its normal caliber. (Six members of the class were instructed in the passing of sounds during this exercise.)

How often should the sounds be passed? No absolute rule can be laid down as to this, but the following may be taken as a general one:

Let the intervals between the sittings be short; about five days, until the normal caliber has been restored, thereafter make them as long as possible, to be determined by the time elapsing before the stricture begins to recontract. This period varies greatly with different individuals. In the early stages of stricture there will sometimes be no tendency to recontract for six months, the time will vary from this to the other extreme in which the recontraction takes place within a few hours as is the case with some resilient strictures, which it is useless to try to treat by this method.

The following rules you may accept as absolute in connection with the treatment by gradual dilatation.

RULES TO BE OBSERVED IN THE TREATMENT BY GRADUAL DILATATION.

Never undertake this, or any instrumental treatment of stricture if there be an acute urethritis present.

Never continue it if constitutional symptoms, chills, fever, fainting, threatening symptoms of suppression of urine, follow the use of the instruments, or if they excite acute inflammatory reaction in the urethra.

Never use any but gentle manipulation.

Have the sounds warm when they are used.

Do not pass the instruments with the patient standing up.

Lubricate the instruments amply and use a sterile medium for the purpose.

Sterilize the instruments before using them. The steel sounds by heat, an alcohol flame is the most convenient manner of applying heat to these instruments. The webbing bougies may be boiled in a saturated solution of rock salt for twenty minutes.

Irrigate the urethra when possible before passing the instruments, preferably with a $\frac{1}{4000}$ solution of permanganate of potash.

Use the webbing bougies until the stricture has been dilated as far as number 18 or 20 French scale, and the steel sounds from this upward.

Avoid making jerky, sudden movements in using the instruments, urge them steadily and gently forward. Hold the handle lightly, do not grip it.

Do not undertake the treatment if you do not know the road through the urethra well.

Do not try to gain too much at one time, on the other hand do not have your patient come to you twice as often as is necessary.

HOW TO PASS THE STEEL SOUNDS.

Preferably, stand on the patient's left side. Enter the tip of the sound into the meatus, with the shaft of the instrument in the line of Poupart's ligament and not much raised above the surface of the body. Next, push the instrument onward through the urethra directly toward the anal orifice, bringing the shaft at the same time gradually to the middle line of the body, but not lifting it much above the surface, until the tip has reached the further end of the bulbous urethra; this you will know by the fact that it is stopped at that point. The left hand holds the head of the penis between the thumb and forefinger during this movement and follows the right hand across to the middle line of the body. On reaching the bulbous urethra and feeling the tip of the sound arrested there, withdraw it slightly, put the penis on the stretch by traction with the left hand, then bring the shaft of the sound directly forward over the symphysis pubis toward the space between the legs.

In making this movement the tip of the sound rises and follows the course of the membranous and the prostatic urethra into the neck of the bladder.

If, by the first examination it has been determined that there is no stricture beyond the anterior urethra, one should avoid passing the sound into the bladder subsequently, since, though the chance is small of so doing, one may sometimes carry infection into the deeper part of the canal and to the bladder; moreover it is from the deep urethra that the impulses which in some cases produce shock or other nervous symptoms are originated.

DIVULSION.

In this method the stricture is split or ruptured by the quick passage through it of a metal instrument having the size of the normal urethra.

URETHROTOMY.

Internal urethrotomy consists in division of the stricture by a single incision through it, which should be made in the middle line of the roof of the canal. This line is selected because of the relatively small blood supply of this part.

The operation is the best performed by the Maisonneuve instrument upon strictures having a smaller caliber than 16 of the French scale. For strictures of a larger caliber I prefer the dilating urethrotome of Otis, which by the separation of the two blades which form its shaft, puts the stricture upon the stretch whereby its complete division is insured, and enables the operator at the same time to cut it to an exactly determined size; the caliber is registered upon the dial at the

distal end of the shaft which shows the degree of separation of its two blades.

The incision of the stricture is made by drawing a narrow knife through it. The knife is concealed in a slot at the distal end of the upper branch of the shaft so that it does not cut until drawn out of it for that purpose. There is a scale of inches along the whole length of one side of the shaft, whereby the distance of the knife from the meatus may be determined and the cut applied to the strictured portions of the canal and nowhere else, the distance of the stricture having been established previously by the use of the urethrometer or *bougie a boule* as already described.

Internal urethrotomy should be limited to the anterior urethra because of the difficulty of dealing with hemorrhage in or beyond the membranous urethra, and because of the greater liability there to retention of inflammatory products and urine, owing to the action of the compressor urethræ muscle, and to septic absorption from the surface of the wound. The urethra should be irrigated thoroughly with a cleansing solution both before and after the operation. A catheter is not tied into the urethra, because of the liability of its exciting urethritis, which if it occurs threatens the success of the operation. In this as in all other methods of treatment, the meatus should be cut to a size a little larger than the normal caliber of its urethra. The best way of doing this is by means of a meatatome, such as that of Civiale which I will pass around for you to see.

Every second day following the operation a full-sized sound should be passed through the urethra, to keep the wound open while it is healing. The cessation of bleeding after the use of the instrument in this way is the signal for discontinuing it. This bleeding accompanying the use of the sounds usually continues for about a fortnight. After this, ten days, then a month, and then six months are allowed to elapse without the use of the instrument, and if no recontraction has taken place then, the patient is directed to come once a year for examination.

This operation, except in cases of very old, dense strictures, offers in my experience about 60% of chances of *cure*, by which term is meant that the stricture shows no tendency to recontract, the patient not using instruments to keep it open.

EXTERNAL URETHROTOMY.

This term usually is applied to the opening of the urethra by an incision made longitudinally through the median line of the perineum. It is appropriate to cases of stricture of narrow caliber or those too dense or resilient to be amenable to gradual dilatation, and to all strictures situated in the membranous or bulbo-membranous urethra.

In any case in which even a filiform guide can be passed through the stricture into the bladder, external perineal urethrotomy is one of the simplest operations; when nothing can be passed through it, it becomes a very difficult one.

The case which is now coming in belongs to the former of these two classes, and you will see that there is already a filiform guide in the urethra.

The neatest way, I think, of doing this operation in all cases in which a filiform can be passed, is that proposed by my colleague, Dr. Gavin of the Boston City Hospital, which I will now show you in this case.

The Maisonneuve staff is first screwed into the metal cap on the end of the filiform guide, which already lies in the urethra. The staff is then passed through the stricture, pushing the guide ahead of it. The triangular blade, blunted on its apex, is next passed into the slot of the staff, and with one steady movement is driven to the further end of it, whereby every stricture is divided to the size of the blade which is used. If the instrument is provided with a number of sufficiently large blades this one internal incision can be made of the same size of that of the normal caliber of the urethra, which is being operated upon, but this is not customary nor altogether free from danger.

The patient is now placed in the lithotomy position. A good-sized grooved staff is passed through the urethra into the bladder, and upon this staff, guided by the nail of the left forefinger placed in the groove from the surface of the perineum, as a guide to it, the point of the knife, its cutting edge being upward, is pushed into the groove of the staff alongside the finger nail, and all the tissues, including the urethra, may be divided with one cut about half an inch in length.

The whole operation need not occupy more than two minutes, and is done with exactly two cuts. It is in truth primarily an internal urethrotomy, the external excision being made to supply drainage, which is secured by fastening a catheter in the bladder through the perineal wound, to avert entrance of urine and septic matter into the cut surfaces and to control hemorrhage if need be. The catheter is left in place for forty-eight hours.

The whole urethra should be thoroughly irrigated with a cleansing solution immediately after the perineal cut has been made. The subsequent treatment by the passage of sounds is the same as that already described.

External perineal urethrotomy without a guide is a very different matter.

The problem here is to trace a minute channel which passes in an irregular way through a dense mass of connective tissue. When false passages have been made by the unskillful use of instruments in previous attempts to enter the bladder, the undertaking is rendered infinitely harder. We will begin by assuming that such is not the case. When it is not, the procedure is as follows: If the anterior urethra will admit a Wheelhouse staff (the instrument was here shown and described), the caliber of which is 15 of the French scale, this instrument is passed into it until it is stopped by the front face of the stric-

ture in the perineum. The urethra is then laid open for a distance of half an inch by an incision from the perineal surface as already described.

The Wheelhouse staff insures the lower end of this incision being at least a quarter of an inch in front of the stricture.

When there are strictures of the anterior urethra of too small caliber to admit the staff, they may be dilated sufficiently to allow of its passage, or, if for any reason this cannot be done, any instrument other than the Wheelhouse that will pass through them, and locate the face of the stricture in the perineal region, may be used in its stead, the only thing to be remembered being that the incision which exposes it in the urethra must not be carried at its lower end nearer the face of the stricture than a quarter of an inch. The object of this maneuver is to preserve intact this bit of the urethra in front of the stricture for the sake of making its course close to the latter clearly visible.

When this has been done a suture is passed into each side of the divided urethra, close to its edge, and these threads are then drawn outward and forward in such a way as to open the urethra widely. The Wheelhouse staff is now turned around and the blunt hook which is on the opposite side of the tip is drawn up against the upper angle of the incision in order to still further display the interior of that part of the urethra. In this way there is formed a funnel-shaped canal at the apex of which lies the orifice of the channel running through the stricture. Sometimes this is detected at once, at others a long search for it may be required. When found the endeavor is made to pass a filiform guide through it.

This is generally successful, if so, it only remains to lay open the canal through the strictured portion by following the filiform guide with the knife. (These operations were demonstrated by illustrations first, then done in the case of a patient in which a guide could be passed.)

When false passages exist, they are more apt to be on the floor or lower side of the urethra than elsewhere, and they start usually at or near the anterior face of the stricture; from here they dissect up the peri-urethral tissue for a greater or less distance. In consequence of being on the floor of the canal, they are apt to be laid open by the incision before the urethra is, and are often mistaken for the latter. The difference in the appearance of the inner lining of the urethra and the false passage is the best guide for distinguishing the one from the other. The largest instrument that can be made to pass through the anterior urethra is the one which is most likely to avoid being caught in the false passage.

When the true canal cannot be traced by any means, there remain two things to be done. One is the operation known as Cock's, and the other, supra-pubic cystotomy and tracing the course of the urethra through the constricted portion from behind. This then becomes an easy matter. The posterior and anterior limits of the strictured area are defined by the tip of a sound resting against each one of them, respectively,— one having been passed from the bladder, and the other through the anterior urethra, — and all that remains to be done is to divide the fibrous tissue between these two points in order to restore the continuity of the urethra.

Cock's operation consists in laying open the urethra behind the stricture by a thrust of the knife from the perineum, guided by the tip of the forefinger of the other hand, which is placed in the rectum against the apex of the prostate. Of the two methods I unhesitatingly prefer the suprapubic in such a case.

The entrance to the stricture when doing the usual perineal operation may sometimes be found by pressing downward upon the bladder from above the symphysis pubis, thereby forcing a few drops of urine through the stricture, which, issuing through orifice of the true channel through the constricted part of the urethra, will serve to locate it.

ELECTROLYSIS.

This method is carried out by applying to the anterior face of the stricture an electric current of measured strength, for stated periods of time, and at certain intervals, by means of an acorn-tipped electrode. Under this influence the passage through the stricture presently enlarges, and allows the instrument to go through it. Of this method I have only to say that I have tried it personally and carefully, and that it has been not only unsuccessful, but has in several instances produced a stricture of greater density and toughness than was originally present.

COMPARISON OF METHODS OF TREATMENT.

Gradual dilatation is more frequently employed than any other form of treatment because of the following reasons: 1. The general practitioner feels competent to do it. 2. The word operation deters many patients from accepting a manner of treatment which involves one. 3. The patient is not confined while it is being carried out.

Its disadvantages and limitations are as follows: It is useless for resilient and very dense strictures. It is unsafe as compared with the operations in those cases in which constitutional symptoms attend the passage of the instruments.

Internal urethrotomy is undesirable in cases of stricture of the deeper part of the urethra, unless it be combined with perineal section and drainage, but when so done it is the best method for those cases. It is the only effective operation for resilient or non-dilatable strictures. It is the only operation which offers the prospect of permanent cure in the proper sense of the word. It is not more dangerous than any other operative procedure when applied to stricture of the anterior urethra. In this class of cases it is, I believe, the operation of choice. If you read, as you will sometimes, that the making of an internal urethrotomy incision in the urethra necessitates the

use of sounds to keep the passage open always in the future, you may take my word for it, this is not true.

External urethrotomy is the safest and most satisfactory one in cases of stricture of the bulbo-membranous or membranous urethra which are not amenable to gradual dilatation or in which the patient has serious constitutional disturbance during the course of dilatation. It allows better control of bleeding, and furnishes drainage of the bladder and for septic products, thereby preventing in greater measure their absorption from the open surfaces of the urethra than internal urethrotomy alone does in the cases of stricture of the character and locality mentioned above. It is a valuable adjunct to an internal urethrotomy in cases in which the stricture can be traversed with a guide beforehand, and which, therefore, admit of the combined operation being done in the manner described already. The risk of urinary fistula resulting from the operation is very slight if the catheter is not retained longer than two days. When chronic cystitis is present it is better to incur the risk of fistula by keeping the catheter longer in place, for the sake of the benefit that results from bladder drainage in those cases.

Divulsion is as safe but not safer than internal urethrotomy. With the exception of a few cases of early stricture it offers no prospect of permanent cure. It opens a free passage through the urethra at once, but does so in an inexact way, for the extent and direction of the splitting of the stricture is not in the control of the operator. It sometimes results in the formation of a mass of connective tissue larger and more dense than the original one, and consequently less amenable to treatment.

The treatment may be summarized briefly thus:

1. The meatus must be cut to a caliber 2 mm. larger than that of its normal urethra previous to properly carrying out any form of treatment.

2. Internal urethrotomy yields the most permanent results of any method, and for strictures of the anterior urethra, irrespective of their character, is the operation of choice.

3. All resilient, intractable, nondilatable and impassable strictures of the bulbo-membranous or membranous urethra are best treated by external perineal urethrotomy.

4. With the exception of these, all strictures so situated are best treated by gradual dilatation, unless, during its course, constitutional disturbances of importance arise, in which case it is safer to divide them at once by an external perineal urethrotomy.

5. Divulsion and electrolysis are not methods to be commended.

(During this exercise six students were given the opportunity to examine the urethra for stricture, and to pass sounds, and two assisted at the operation of combined internal and external perineal urethrotomy referred to in the text of the lecture.)

Original Articles.

SERUM DIAGNOSIS OF TUBERCULOSIS.*

BY DRS. ARLOING AND COURMONT, LYONS, FRANCE.

For several years our method of serum diagnosis of tuberculosis as practiced by us has been employed in most of the large scientific centers of Europe, but in America, although commonly employed by some writers, it does not seem to have been put to general practical use. Is this because of ignorance of the work of the Lyons physicians or of the difficulty of obtaining and maintaining the homogeneous cultures necessary for the agglutination reaction? This question we cannot answer.

However, it has seemed to us profitable to indicate here the actual status of this subject, so important for the diagnosis of tuberculosis, and to study briefly the history, the technique and the results of the serum diagnosis by the agglutination of homogeneous cultures.

I. The Historical Aspect of the Subject.

In 1898 Arloing published a method of obtaining liquid homogeneous cultures of the bacillus of Koch, and was the first to show that these cultures could be agglutinated by the serum of tuberculous human beings or by animals rendered tuberculous, thus creating the serum diagnosis of tuberculosis.[1]

Certain improvements in obtaining and in the choice of homogenous cultures [2] and chiefly the clinical application [3] and general significance of the serum reaction for tuberculosis have been studied by Arloing and Paul Courmont in numerous publications.

The serum diagnosis of tuberculosis in bovines has been further studied by Arloing.[4]

The variations in the agglutinating power of effusions and tuberculous effusions has been investigated by Paul Courmont and the result published in various articles.[5]

Since 1899 many authors have studied this subject, both in France and in foreign countries, and a certain number of points have for some time been established beyond all question. The following facts are admitted by all writers:

1. The bacillus of Koch can be cultivated in homogeneous fluid cultures. Certain experimenters, such as Buard (of Bordeaux), Bronstein (of Moscow), Carriere (of Lille), etc., have accomplished this result by starting with solid cultures different from ours. All those to whom we have sent our homogeneous cultures have maintained them easily.

2. These homogeneous cultures are very readily agglutinated in variable strengths by the serum of tuberculous human beings or of animals rendered tuberculous. Beck and Rabinowitch, with whom we disagree on other points, have recognized that it is possible to raise the natural agglutinating powers of the blood of an animal by inoculating it with tuberculosis.

* Translation of paper presented at the Section in Medicine of the Congress of Arts and Sciences at St. Louis, September, 1904.

As to the practical application and the clinical value of the tuberculous serum reaction opinions are divided in the following manner: Most authors confirm the results which we have obtained in every way. (Ferré, Mongour,[6] Buard,[7] Rothamel,[8] in Bordeaux, Mosny[9] and Ravaut in Paris. Carriere[10] in Lille. Bendix[11] and Romberg[12] in Germany were the first writers who used this method with success.)

Bendix in Germany arrived at the same conclusions that we did concerning the frequency of the serum reaction in tuberculous cases and also demonstrated that the greatest intensity of this reaction occurred in the first and second period of the disease, and in consequence showed the value of serum diagnosis for the detection of incipient or even latent tuberculosis. The statistics of Romberg, based on ninety-five cases in which he arrived at the same results as ours, but by a different technique, is of great interest, and we shall speak of this later.

Some writers, confirming the essential points of the serum diagnosis of tuberculosis, make, however, certain reservations with regard to its applications, for the most part because they have not been able to base their statistics on a sufficient number of cases. (Frenkel[13] of Halle, Knopf[14] of New York, Ficker[15] of Leipzig, Bronstein[16] of Moscow.)

But since 1901 many scientists of various nationality have published works absolutely confirmative and based on a large number of cases. We can do no more than enumerate them here: In France, Dieulafoy[17] Widal and Ravaut,[18] and Schrapf[19] of Paris, Clement,[20] Weill and Descos, Descos[21] and Froment[22] of Lyons, Hawthorne[23] of Marseilles, Rodet and Logriffoul[24] of Montpellier. In Germany, Rumpf and Guinard[25] (in a publication in which they compare the results of serum diagnosis by our method and by that of Koch). In Russia, Kazarnion.[26] In Italy, Llvento,[27] Margazalli and Lapareno,[28] Marchetti and Heprnelli,[29] etc.

Only a small number of writers have been unable to obtain good results with the serum reaction: Beck and Rabinowitch,[30] Nobele and Beyer,[31] Ivanoff,[32] De Grazia,[33] Gebhardt,[34] Ruitinger,[35] Koch.[36]

We can only repeat here the criticism we have made in other places of these latter works, among others that of Beck and Rabinowitch.[37] Certain authors have not been able to reach our conclusions because they have employed other technique than ours, for example, Koch. Others obtaining statistical results analogous to ours have not known how to interpret them on account of their unwillingness to admit the great frequency of tuberculosis in subjects non-tuberculous in appearance. Finally, certain authors have not followed in their technique the precautions which we have indicated.

It is remarkable, in any event, that it should be the great majority of authors who have confirmed our researches and that this confirmation should be more marked the greater the number of their cases and the more extensive their statistics.

II. The Technique for Investigating the Serum Reaction of Tuberculosis. Difficulties and Sources of Error.

The technique of maintaining homogeneous cultures for performing the serum reaction presents serious difficulties for the beginner because it requires care and precautions which are not necessary in the serum diagnosis of typhoid fever, for instance. It is this, without doubt, which has caused murmurings on the part of some experimenters, and the reservations which certain authors have made in regard to this subject, but these difficulties can easily be overcome with a little perseverence and some precautions, in a well-equipped labaratory.

1. The principal difficulties and sources of error.

These we have often indicated and we are now going to recapitulate the principal points. The sources of error in the application of serum diagnosis of tuberculosis are of two sorts, some arising from the nature of the malady itself, others from the properties of the cultures.

A. Sources of error arising from the localization and the evolution of the tuberculous process itself. — In certain diseases running a typical course, like typhoid fever, the clinical diagnosis can in most of the cases finally be made with certainty, and it is easy to compare the clinical findings with those of serum diagnosis. But in tuberculosis in which the foci are multiple and may require a long period for their development, — the disease presenting itself in the most varying aspects and which may be even compatible with an appearance of health, — the difficulties of clinical diagnosis are often great, especially at the beginning. Therefore, in many cases a serum diagnosis which is positive in proper dilution may be at variance with the clinical examination, especially when this has been superficial and points to an intercurrent disease without taking tuberculosis into special account; thus we have often seen the results of serum diagnosis confirmed by autopsy despite the fact that they were at variance with the clinical findings. It is for this reason that experimenters who perform the tuberculous serum reaction with the blood of cases in which they have not taken into account the complete clinical examination or the protocols of the autopsy cannot draw any valuable conclusions from their work. Some time ago we established the fact that certain cases of long standing tuberculosis (usually the sickest) may not give the serum reaction, and moreover that subjects who are really tuberculous but well in appearance may give a very positive reaction. On account of this apparent contradiction certain writers have come to erroneous conclusions with regard to the futility of serum diagnosis in tuberculosis.

In order to carry out profitable research on this subject one must be able, on the one hand, to study the serum reaction in the laboratory with all the essential precautions, and, on the other

hand, to establish a clinical diagnosis as completely as possible by means of all available resources. (Clinical examination, analysis of sputum, and the use of tuberculin, etc.) Really indisputable statistics should not be based on any cases except those where complete autopsy has been done, with anatomico-pathological and bacteriological examination, when necessary. This was done by Arloing in bovine tuberculosis.[38] As this is not always possible in human statistics, one must remember that only those cases in which the clinical diagnosis is positively established, should be used for comparison with the results obtained by the serum reaction.

B. Sources of error arising from the development of the cultures. — These sources of error have been expounded at considerable length in another paper of ours [39] and have been further considered and even exaggerated by Ficker.[40]

This author, as well as Romberg, also shows that the reasons for the inexplicable differences of opinion of some observers must be sought for in these sources of error, but they go too far in saying that the difficulties encountered render this procedure inapplicable, simply because certain investigators have not been able to overcome them.

These difficulties can be further summarized under three headings:

1. It is really a difficult and delicate procedure to transform an ordinary stock culture of the bacillus of Koch into a liquid homogeneous culture. This difficulty does not exist any longer since we are prepared to send liquid stock cultures of bacilli to any who ask for them. It is even preferable that investigators who wish to try this method should use the same bacilli which we employ.

2. The homogeneous cultures show a great variability in their aptitude for agglutination, owing to their varying richness in bacilli, conditions of their development, age, etc. By employing a technique always the same for the same observer these difficulties can be overcome. The employment of a test serum, and by the use of diluted cultures, most of these difficulties are avoided.

3. Since the agglutinating power is low with serums from human tuberculous cases (it is rarely above 1 to 20), it is necessary to take into account slight variations in order to judge accurately the serum reaction. Concerning this last point we shall see farther along how this problem can be solved (the use of a standard serum and estimation of the reaction by the naked eye). It is certain beside that these last two points are sufficient to explain the divergent opinions of some writers. Among different observers some do not take sufficiently into account the precautions necessary to overcome the variations in the properties of the culture, or do not accurately estimate by the same method the degrees and the amount of agglutination, and, as a result, the conclusions of these writers differ from those who have followed the necessary conditions more strictly using a technique always the same.

2. HOW TO OBTAIN HOMOGENEOUS CULTURES OF THE BACILLUS OF KOCH IN LIQUID MEDIA.

This result is obtained by two procedures: In the first the object is to obtain a luxuriant growth of confluent colonies having a greasy and shining appearance on potato.

In the second these colonies are grown in liquid media (for details see S. Arloing Ac. des Sciences, 9 Mai 1898). To preserve the homogeneity of successive generations shaking the culture is necessary; this overcomes the tendency of the bacilli to grow in granules or in a scum. It should be borne in mind always, however, that this tendency diminishes as the successive generations become more numerous. We have even in time succeeded in making these bacilli grow easily in non-glycerinated bouillon. If these cultures are allowed to grow at rest some colonies will rise to the top and develop on the surface of the bouillon. In that event three layers of the culture can be distinguished: At the bottom a layer of bacilli isolated or clumped in granules, in the middle clear, transparent bouillon, and at the top a layer of bacilli forming a scum.

These homogeneous cultures have lost in part their power of retaining stains when acted upon by acids. The experimenter who uses these cultures should recognize the variability of their character in order that he may not be led into error, or take for impure cultures those in which the bacilli have lost a part of their classical properties. The return of these properties to the normal, by allowing them to grow for some time, should always be the criterion by which they should be judged.[41]

Their resistance to decolorizing agents and their variation in virulence are not the only changes which occur, since their agglutinability varies also.

3. METHOD OF OBTAINING CULTURES THE MOST FAVORABLE FOR AGGLUTINATION.

The chief factor which renders serum diagnosis of tuberculosis more difficult than in other diseases is as follows:

The homogeneous cultures of the bacillus of Koch show a considerable variation in their aptitude for agglutination. This variability depends largely upon one point, namely, their richness in bacilli and in agglutinable material.

This richness in bacilli and in agglutinable material depends above all things upon the luxuriant development of the culture. The agglutinability, more or less great, varies with favorable and unfavorable conditions in the course of development; the older and more concentrated the cultures the more difficult they are to agglutinate, therefore it is necessary to use fresh cultures or slightly diluted old cultures. In order to estimate and measure the agglutinability of these cultures or their dilutions, a standard serum should be employed.

A. Conditions necessary for maintaining cultures.[42] — The same conditions must always be observed: From 4% to 6% glycerinated bouillon

just neutralized must be used, the flasks must be shaken daily in order to maintain their homogeneity.[43] An incubation temperature of 38° C. must be maintained. Flask cultures should be planted from thoroughly homogeneous stock cultures about one month old. The constant use of the same technique is essential.

B. Dilution of the cultures. — Young cultures of a few days' growth can be used but we actually prefer old cultures diluted. A well-developed culture of one month's growth should be chosen and removed from the incubator. The necessary quantities are taken and diluted with salt solution, 8%, until the mixture becomes slightly milky, like a solution of glycogen. With a little practice the desired dilution is obtained, and each time tested with the standard serum; this diluted culture is used directly for the serum diagnosis.

C. Method for using the standard serum. — In order to estimate the agglutinability of the young or diluted culture, use is made of human or animal serum in which the agglutinating power has been determined. The culture, or diluted culture, should not be used unless agglutinated at the exact strength determined by this test serum.

D. Methods of preserving cultures for dilution and the standard serum. — Once those cultures intended for dilution have been removed from the incubator they should be kept in a dark, cold place,[44] at a temperature below 10° C. if possible. This is the best method of keeping them. In this manner the cultures can be used for dilution over a period of three or four weeks. The standard serum retains its power for several months if it is kept at an even, cold temperature and in the dark.

These improvements in the technique, and especially in the use of diluted cultures, render the method more practical than at the beginning of our researches. Thus a small quantity of a month-old culture can be used by diluting it for several hundred serum reactions, since each one only requires two or three cubic centimetres of diluted culture.

4. THE TECHNIQUE OF THE SERUM DIAGNOSIS.

We can only repeat here what we have so often said before, and we will only recall the following points:

A. The serum of the patient (obtained by pricking the thumb and catching the blood in a tube) should be fresh, clear and sufficient in amount (about half to one cc. of serum).

B. The culture is diluted as we have described and tested with the standard serum.

C. The serum agglutination reaction is then performed with the suspected serum in the same manner as for typhoid fever; but the proportions of the diluted culture and serum are 1 to 5, 1 to 10, and 1 to 15, and higher if necessary.

D. The agglutination should be observed with the naked eye in the first three to five hours and only positive results should be noted in tubes, which show complete agglutination easily visible to the naked eye, and showing flocculi and subsequent clarification.[45]

E. Comparison of the results obtained is then made with the results shown with the standard serum. The reaction can be considered positive only when the suspected serum shows an agglutinating power greater than that obtained with the normal serum of the kind of animal under consideration (in man at 1 to 5). The agglutinating power of the serum of tuberculous human beings is rarely very great. By our method it varies between 1 to 5 and 1 to 20 or 30.

III. RESULTS AND CONCLUSIONS.

The results of the serum diagnosis of tuberculosis are not based alone upon our personal work but on that of the numerous writers which we have quoted. Here in brief are the results:

In tuberculous human beings the serum has a similar reaction to certain animals rendered tuberculous, for instance, guinea pigs. Its agglutinating power rarely rises above 1 to 20, never to the higher degree which we have shown exists in the dog. Generally it fluctuates about 1 to 10, and in order to estimate it accurately it is necessary to follow the precautions which we have indicated.

1. THE AGGLUTINATING POWER OF HUMAN BLOOD SERUM.

A. In the so-called medical cases of tuberculosis we have studied the serum in more than four hundred cases, taken principally by chance from the service of Professor Bondet and Professor Tesseire at the Notel Dieu in Lyons. These are the results:

In clinical cases of tuberculosis: Positive reactions, 87.9%, negative reactions 12.1%. In cases not clinically tuberculous: Positive reactions 34.6%, negative reactions 65.4%. In subjects well in appearance: Positive reactions 26.8%, negative reactions 73.2%.

If comparison is made of the figures of the positive reactions in these three classes it is seen that the percentage gradually diminishes in going from the tuberculous cases (87.9%) to hospital cases in general (34.6%), and finally is least in healthy subjects (26.8%). This corresponds with what is known of this last class of cases with regard to the frequency of tuberculosis in individuals of non-tuberculous appearance.

In the tuberculous class we have chosen those cases differing most widely regarding localization (lung pleura, peritoneum, intestines, glands, etc.), and regarding severity (all the way from phthisis with cavity, galloping phthisis, caseous pneumonia, to benign pleurisies and discrete lesions of the apices). For a long time we have noted that the severe cases of tuberculosis nearly all gave negative reactions, and on the other hand the discrete and curable cases nearly always gave a positive serum reaction. Mongour, Buard, Rothamel in 1899, Bendix and Romberg have absolutely confirmed and emphasized this point.[46]

Among the patients not clinically tuberculous we have been able to discover by means of the serum reaction a large proportion of latent tuberculous cases; this should not surprise us. The

autopsies have often enabled us to confirm the findings of a serum diagnosis which during the life of the patient disagreed with the clinical diagnosis as to the apparent disease.[47]

The inferences to be drawn from Romberg's statistics agree absolutely with ours.[48] As to whether a positive serum reaction can exist where there are no apparent tuberculous lesions judgment must be reserved since it is certain that a former tuberculous infection, due to recently healed lesions, or even very small lesions that have escaped detection, or even latent bacillary tuberculosis, may explain such an hypothesis.[49] In regard to the subjects of healthy appearance, the low frequency of a positive serum reaction is again in accordance with the frequency of latent tuberculosis in these cases.

B. In the so-called cases of surgical tuberculosis a study of the patients taken by chance and reported in the thesis of Clemant,[50] has led us to the following conclusions:

In the non-tuberculous cases the reaction has always been negative. In the tuberculous cases the serum reaction has been positive in the following proportion: 76.6% in the cases where the lesions were osteo-arthritic; 75% in the cases where the lesions were purely osseous, and 70.6% in varying tubercular lesions.

2. THE AGGLUTINATING POWER OF SEROUS TUBERCULOUS FLUIDS.

The general method has been extended by me to the diagnosis of the nature of pathological effusions, by investigating the agglutinating power not only of the blood serum but of the pathological serous fluids themselves.

All the details for the application and the results obtained from a study of 135 serous effusions, tuberculous and non, in men and animals, will be found in a recent work.[51]

The agglutinating power is always absent in non-tuberculous effusions, and it is nearly always present, and often in marked degree, in tuberculous pleurisies and in benign tuberculous peritonitis; it may be absent in cases of severe tuberculosis (purulent pleurisy and miliary pleurisy, peritonitis, meningitis, etc.). The demonstration of the agglutinating power of a pleural fluid is of great value in the diagnosis of tuberculosis.

3. THE CAUSES WHICH BRING ABOUT A MODIFICATION OF THE AGGLUTINATING POWER IN TUBERCULOUS CASES.

We have already seen that the grave cases of tuberculosis have often none, or at best, a very feeble agglutinating power. It is known that analogous instances are encountered in the use of tuberculin as a diagnostic measure; bovines affected with very advanced tuberculosis react very poorly to tuberculin. In order to discover the cause of this fact we have tested numerous animals with regard to the agglutinating power of their serum before and after inoculation with cultures, some of which were very virulent and some much attenuated. These experiments are recorded in our writings.[52]

Our general conclusions were as follows:

The agglutination in these experiments seems to be modified by two factors:

1. The virulence of the "tuberculizing" agent.
2. The susceptibility of the species of animal to tuberculosis.

The development of the agglutinating power in an individual seems to require that this individual shall resist to the greatest possible extent the tuberculous infection. Resistance will be offered under two conditions: when the organism naturally offers a poor medium for the proper evolution of the tuberculous process or when offering a favorable soil it receives an attenuated virus. Without doubt it is possible for other conditions to influence the variations in the agglutinating power of the serum in tuberculous men and animals, but we believe that the preceding conditions are of the greatest importance. It is not necessary to dwell upon the inferences to be drawn from these facts which explain the cases of negative serum reaction in man and which may have some importance in regard to the prognosis in different forms of human tuberculosis.[53]

4. THE SERUM REACTION AT DIFFERENT AGES.

We have investigated the influences which the age of the patient has upon the frequency of positive serum reactions in healthy and tuberculous persons. Romberg and Descos [54] have studied the serum reaction in children; Froment,[55] in the aged. The conclusions which have been drawn from our observations and those of these writers are as follows:

A. Serum of the new born is never agglutinated, even when the patient is born of a tuberculous mother. (The new born themselves are very rarely tuberculous.)

B. As the infant advances in age the serum reaction increases in frequency as well as degree: thus, from five to ten years of age, children show a power of agglutination which increases with the age, thus it is possible to discover advanced or latent tuberculosis.[56]

C. The adult serum gives the reaction most frequently and the greatest degree of agglutinating power (see our statistics), whether it concerns clinical tuberculosis manifest or latent. It is seen, then, that the frequency of positive serum reactions increases with age up to the maximum age for adults. With the increase in age there is a corresponding chance of tuberculous infection with which the above increased frequency of the serum reaction corresponds. This point is well shown in the works of Naegel in Germany. The results obtained by means of the tuberculin reaction are the same and absolutely identical with ours.[57]

D. In the aged the frequency of positive serum reactions is diminished, for at this age the tuberculous lesions should have been healed for some time or would have carried off, long before, the subjects attacked. When the serum reaction is

plainly positive in the adult it indicates an active tuberculous process.

Nothing is more interesting than the evolution of the serum reaction considered from the standpoint of patients of different ages. It corresponds exactly with what is known of tuberculosis latent or evident at the different periods of life. The different methods control and confirm each other.

General Conclusions.

We can, at present, thanks to our general statistics and experiments, or confirmative observations, made by numerous writers, repeat with more confidence than ever the following general conclusions and clinical applications:

First: The use of homogeneous glycerinated-bouillion cultures of the bacillus of human tuberculosis has enabled us to investigate the agglutinating power of fluids and especially the serum of tuberculous patients, and thus establish the serum-diagnosis of tuberculosis.

Second: The advantages of the method are those of serum diagnosis in general:

(1) Absolute harmlessness, since all that is necessary is to withdraw a few drops of blood or remove a little serous fluid, and it can be applied in all cases, whether febrile or not, whether seriously or slightly sick.

(2) Ease and rapidity, since it is not necessary to have the patient under observation, and it requires only a few hours for its accomplishment.

(3) The delicacy of the reaction in cases where the lesions are discrete or latent and difficult to recognize by the usual methods.

It is true that the details of the technique for maintaining suitable fluid cultures and the performance of serum diagnosis require that fairly exact and indispensable conditions should be followed, on account of the slight degree of agglutinative power of the serum from cases of human tuberculosis.

Third: In the cases of slightly advanced pulmonary tuberculosis the agglutinating power of the serum is nearly always constant, but in varying degree. It varies from 1 to 5 to 1 to 20 and more.

In advanced cases with very extensive or virulent lesions the serum reaction is often absent or very slight. It may also diminish in intensity and disappear as the disease becomes progressively worse. The experimental data confirm those of the clinic. *The agglutinative reaction in tuberculous subjects appears most often and within certain limits in inverse ratio to the gravity of the infection and the extent of the lesions.*

Fourth: In cases suffering from other divers diseases and in which the clinical data does not reveal positive signs of tuberculosis the serum reaction enables us to discover a large number of cases of latent tuberculosis. Autopsy or further development of the disease frequently confirms serum diagnosis.

Fifth: Likewise with persons apparently healthy the reaction, so frequently absent, is positive in a certain number of cases, in a proportion corresponding to that of the known frequency of latent tuberculosis.

Sixth: Its value in practical use:

(1) A positive serum reaction in the case of a suspected subject is a diagnostic point of great value in establishing the existence of visceral tuberculosis still active or having become *inactive recently.*

(2) A negative serum reaction will have less value as a negative sign since agglutination is absent in a certain number of tuberculous cases.

(3) But the absence of the serum reaction in cases of advanced tuberculosis, where serum diagnosis is no longer necessary, may in certain cases confirm an unfavorable prognosis. But on the contrary in the case of a patient suspected of tuberculosis, in the absence of clinical signs and symptoms of importance, the absence of the reaction may be of great value in helping to eliminate this disease. The same conclusions are applicable to serous pleural effusions.

It goes without saying that agglutination by the blood serum does not point out the locality of the tuberculous infection, but it is the place of the clinician to make use of the findings of the laboratory.

Seventh: In conclusion it seems to us that the serum reaction constitutes a rapid procedure, inoffensive to the patient and of great value for the early diagnosis of tuberculosis, especially in patients suspected of having early pulmonary lesions.

REFERENCES.

[1] S. Arloing: Sur l'obtention de cultures et d'emulsions homogenes du bacilli de la tuberculose humaine en milieux liquide. Compte Rend. de l'Acad. des sciences, Par., May 9, 1898. Agglutination du bacille de la tuberculose vraie. Compte Rend. de l'Acad. des sciences, Par., May 16, 1898. Agglutination du bacille de Koch par le sérum sanguin des tuberculeux. Congres de méd. interne, Montpellier, 1898. Apparition dans le sérum sanguin, sous l'influence de produits chimiques, d'une matiere capable d'agglutiner le bacilli de la tuberculose vraie. Compte Rend. de l'Acad. des sciences, Par., May 31, 1898.

[2] S. Arloing et Paul Courmont: De l'obtention des cultures du bacille les plus propices à l'étude du phénomene de l'agglutination par le sérum sanguin des tuberculeux. C. R. de l'Acad. des sc., Par., Feb. 19, 1898.

[3] S. Arloing et Paul Courmont: Recherche et valeur clinique de l'agglutination du bacille de Koch. C. R. de l'Acad. des sc., Congres pour l'étude de la tubercul, Paris, 1898. Séro-diagnostic de la tuberculose. Congres pour la lutte contre la tubercul. Berlin, May, 1899. L'agglutination du bacille de Koch. Séro-diagnostic. Zeitschrift f. Tuberk. und Heifstaettenwesen, 1900. Band 1, Heft 1. S. Arloing et Paul Courmont: Des causes qui modifient le pouvoir agglutinant dans le sang des sujets expérimentalment tuberculeux. Journ. de physiol. et de pathol. générale, 1900. No. 1. Voir aussi: Le séro-diagnostic de la tuberculose. Revue générale. Gazette des hôpitaux, December, 1900.

[4] S. Arloing: Journal de Med. Vétérinaire et de zootechnie de l'Ecole Vétérinaire de Lyon, September, 1900.

[5] Paul Courmont. Action des épanchements des séreuses sur le bacille de Koch en milieux liquides. Soc. de biologie, May 28, 1898. Séro-diagnostic des épanchements tuberculeux, Presse méd., June 11, 1898; Congres de la tuberculose, Paris, 1898. Agglutination du bacille de Koch par les épanchements tuberculeux. Séro-diagnostic. Archives de méd. Experimentale No. 6, November, 1900. Voir sur le meme sujet: These de Feitu, Lyon, 1900. These de Gritlot, Lyon, 1904. Séro-diagnostic et séro-pronostic de la Pleurisie tuberculeuse.

[6] Mongour et Buard: Soc. de biol, 17 Juin et 20 Dec., 1899. Journ. de méd. de Bordeaux., Dec. 17, 1898, et July 9, 1899.
Mongour: Rapport à la reunion médico-chirurgicale des hôpitaux de Bordeaux, 1899.

[7] Buard : Séro-réaction tuberculeuse. Cultures du bacille agglutinable. Etude spéciale chez l'enfant. Th. de Bordeaux, 1900. Journ. de physiol. et pathol., September, 1900. Séro-réaction tuberculeuse. Gaz. hebd. des sc. méd. de Bordeaux, September, 1900.

[8] Rothamel: Agglutination du bacille de la tuberculose, principalement chez les tuberculeux chachectiques. Th. de Bordeaux, November, 1899.

[9] Mosny: Congres de Paris, 1900.

[10] Carriere: Le sero-diagnostic de la tuberculose. Société de Biologie, July 6, 1901.

[11] Bendix: Zur sero-diagnose der Tuberkulose. Deutsch. med. Wochen., April 5, 1900, p. 224.

[12] Romberg: Zur sero-diagnose der Tuberkulose. Deutsch. med. Wochen., 1901. No. 18, 19.

[12] Frenkel: Séro-diagnostic de la tuberculose d'apres les recherches de S. Arloing et P. Courmont. Hygien. Rundschau, July 10, 1900.
[14] Knopf: Early recognition of pulmonary tuberculosis. Journ. of the American Medical Assoc., December, 1899.
[15] Ficker: Ueber die serum reaction bei Tuberkulose. Zeitschrift f. tuberculose, B. 1, Heft 4.
[16] Bronstein: Soc. de pédiatrie de Moscou, 1901 et Wratch, 1901.
[17] Dieulafoy: Semaine médicale 1903 et Cliniques de l'Hôtel Dieu.
[18] Widal and Ravaut: Agglutination du b. de Koch dans 24 cas de pleurisies. Congres de la Tub., Londres, 1901.
[19] Schrapf: La Tuberculose: son diagnostic précoce par l'agglutination. Archiv. de méd. militaire, January, 1902.
[20] Clement: Séro-diagnostic de la Tuberculose chirurgicale. These de Lyon, 1900.
[21] Weill et Descos: Cytologie et séro-diagnostic tuberculeux. Bulletin de la société méd. des hôpit. de Lyon, March 14, 1902.
Descos: Le séro-diagnostic de la tuberculose chez les enfants. These de Lyons, 1902. Journal de physiol. et pathol. générale, No. 1, 1903.
[22] Froment: Le séro-diagnostic de la Tuberculose chez le Société de Biologie. Decembre, 1903, et Bulletin de la Soc. méd. des hôpit. de Lyon, December, 1903.
[23] Hawthorne: Séro-réaction Tuberculeuse. Journal de Physiol. et Pathol. générale, No. 1, 1903.
[24] Rodet and Logriffoul: Journal de physiol. et pathol. générale, No. 8, 1902.
[25] Rumpf und Guinard: Recherches sur la séro-réaction tuberculeuse. Presse medicale: March 22, 1902, et Deutsch. med. Woch., No. 8, 1902.
[26] Kazarnion: Contribution a l'étude du séro-diagnostic Tub. Neorologintchesski 849–857, 1901.
[27] Livento: Sull' agglutinabilita del bacillo tuberculare et suo importanza diagnostica. Reforma medica, No. 261, 266, 1902.
[28] Margazalli and Lapareno: Twelfth Congres de med. italien. Rome, 1902.
[29] Marchetti and Hepmelli: Sullo siero reazione tubercolare. Rivista critica di Clinica medica, No. 42, 43 et 44, 1903.
[30] Beck and Rabinowitch: Deutsch. med. Woch., No. 25, 1900. et Zeitschrift f. Hygiene u. Infect. v. xxxviii, 1901.
[31] Nobele and Beyer: Soc. de med. de Lyons, Dec. 3, 1901.
[32] Ivanoff: Neorologintchesski, 1901.
[33] De Grazia: Berliner Klin. Woch., 1902.
[34] Gebhardt und Torday: München. med. Woch., 1902.
[35] Ruitinger: Zeitschrift f. Tuberkul. Bd. III, Heft 6, 1902.
[36] Koch: Deutsche med. Woch., 1902, No. 88.
[37] Voir aussi: S. Arloing et P. Courmont: Sur la valeur de la séro-réaction pour le diagnostic précoce de la tuberculose. Presse médicale, Sept. 1, 1900, et Deutsche med. Woch., November, 1900. Bd. 48.
[38] S. Arloing: *loc. cit.*
[39] Voir: Gazette des hôp., de Decembre, 1900.
[40] Ficker: *loc cit.*
[41] Our bacillus is only slightly virulent; it may, however, cause mesenterie tuberculosis in rabbits when injected into the peritoneal cavity. It may cause generalized tuberculosis in guinea pigs at times.
[42] All the details of this technique will be found in our preceding works.
[43] The flask is shaken once or twice a day by hand or with a mechanical agitator which we have devised. See Mechanical and Electrical Vibration for Homogeneous Cultures. Arloing and Courmont, Jour. de Physiol. et Pathol. Gen., 1903.
[44] See Arloing and Courmont.
[45] The reaction is called negative, if there is no reaction at 1 to 5, and it is positive at 1 to 5, 1 to 10 or 1 to 15. The last tube to agglutinate should be the one of greatest dilution in dilutions of 1 to 5, 1 to 10 and 1 to 15.
[46] For the discussion of these facts see our article, Zeit. f. tubercul. Band I, reft. p. 1,117. Congres de Paris, 1900.
[47] See articles already quoted.
[48] See Romberg's work.
[49] See discussion on this subject in our article in the Gazette des hôpitaux, 1900.
[50] Thesis of Clemant, Lyons, 1900.
[51] For the details and reports of these cases see Paul Courmont: L'Agglutination du bacille de Koch par les épanchements des séreuses. Archiv. de med. experimen., Novembre 1900, et Th. de Feitu sur le meme sujet, Lyon, 1900.
[52] Journal de physiol. et pathol. generales 1900, No. 1, p. 83 et aussi: société de biologie de Decembre, 1900.
[53] For the discussion of this question see our recent work. S. Arloing and Paul Courmont: Variations de l'agglutination des bacilles de la tuberculose. Revue de la tuberculose. June 1, 1904, et Nov. 1, 1904. (?)
[54] Descos: *loc cit.* Romberg: *loc. cit.*
[55] Froment: *loc. cit.*
[56] For the technique, which varies a little in children, see Descos.
[57] See Beck.

REMARKS ON THE JURISPRUDENCE OF CIVIL MALPRACTICE, BASED PRINCIPALLY ON THE DECISIONS RENDERED BY FRENCH COURTS.*

BY CHARLES GREENE CUMSTON, M.D., BOSTON.

MEDICINE, unlike mathematics, is not an exact science, and like all sciences based on observation it is supported by hypotheses; like chemistry and physics it includes numerous scientific systems, and it is to the noble fight in which the partisans of the various systems engage that is due the marvelous progress of this science, so useful to humanity. It is difficult to say whether a perfect accord will ever reign in medicine, and also whether the true theories will appear which will forever put an end to the ever-changing aspects of medical science. If such a time should come, it will only be in distant generations to come, because science always takes a long time to penetrate the thick shades which blind the feeble human brain. It can hardly be compared to the drop of water which, during centuries, falls on the same stone without tracing more than an almost imperceptible furrow. Slowly, as more truth has come to light, systems disappear only to be replaced by others. No one can pretend that he alone possesses the truth, and no one can say that such and such a medical theory, to-day accepted by the majority of physicians, will not be soon replaced by another, which only on the eve before was looked upon with the deepest disdain.

In trials for civil malpractice it is out of the province of anybody to say what is the truth and what is erroneous, and this applies above all to the magistrates. The jurisprudence of Massachusetts and many other states have clearly understood this fact, and the same may be said of French jurisprudence, and although in the judgments rendered, the principle of medical liability is recognized, it has always discarded the disputes of schools and has always avoided becoming intermingled in scientific controversies. It has recognized the fact that it is out of its province to blame or to praise such or such a system, and that if it should enter upon this field it would in all probability render the practice of medicine quite impossible.

The principles that we uphold will, we trust, allow us to come to some solution regarding medical liability in the case of embryotomy on the living child, and faithful to the title of this paper we will consider the aspects of the case as it has appeared in France. One of the greatest authorities on obstetrics, Professor Pinard of Paris, thus poses the question in a clinical lecture that he delivered five years ago, as follows: A woman in labor cannot be spontaneously delivered on account of a contracted pelvis; the child is living and at term. The operation that the physician judges both necessary and indispensable is objected to by either the patient herself or her family and another interference is imposed upon the physician and this intervention implicates the death of the child. Under these circumstances the physician has only the choice between embryotomy on a living child, a most detestable and unscientific operation, and the Cesarean operation, which at the present time has a very small mortailty for the mother, and only a slight one for the child. Opinions differ as far as medical doctrine is concerned. Noegelé and Caseaux admitted that one had no right to perform the Cesarean operation on a woman without her consent, and that if a sacrifice was to be made at all, it was

* Read by invitation before the New York Society of Medical Jurisprudence, Nov. 14, 1904.

wiser to kill the child in order to save the mother. Now Professor Pinard upholds that the Cesarean operation is no more dangerous for the mother than embryotomy, and that it is the only operative means by which the labor may be terminated, because, as he points, out the accoucheur has neither the moral, legal nor scientific right to perform embryotomy on a living child. I would go still further and say that the Cesarean operation is far much safer for the mother, and that the operation of embryotomy has at present time practically no indications whatsoever.

Now we will suppose that a physician performs embryotomy and the mother brings suit against him for malpractice. There is no doubt whatever that the court could not find the physician liable. The question thus presents itself: Had the physician wrongly or properly acted in performing embryotomy on a living child? It is evident that the court cannot reply in either sense without penetrating into the realms of science to which it is forbidden.

Medical abortion is also a purely scientific question, and the physician who performs it has only to call upon his conscience as to whether he is doing right or wrong; but in order to be perfectly sure of his position in the matter it is always wiser, we believe, after consultation with one or more physicians, to notify the medical examiner of the district if the operation is to be done. The courts are not called upon to appreciate the value of such therapeutic procedure, because the physician should be perfectly free to choose the system and the medication that he considers proper to employ, and Tourdes has said that, "the physician who has chosen his doctrine, his method of treatment, his operative procedure, and who testifies, scientifically, his manner of acting, cannot be condemned in the name of a different doctrine." It may be that success does not crown his efforts, and that the patient dies who might have been saved had another treatment been employed, but it would be quite unjust to hold the physician liable, who in all conscientiousness had given the patient his care.

It would be both unjust and dangerous for society at large to hold physicians liable for their system of therapeutics. Unjust, because a physician is not in the wrong who has ordered a prescription, the administration of which may possibly have resulted fatally, if his studies, researches and former successes have led him to conscientiously accept the given method as the best. Dangerous for society, because physicians, if perpetually threatened with suits for malpractice, would dare to prescribe only certain medicines, inoffensive without doubt, but equally without action on the disease and incapable of arresting its progress. And for that matter, who could come forward and affirm with certitude that it was the treatment employed which caused the death of the patient? and how many times would the court be in danger of holding the physician liable when in reality the unfortunate outcome was entirely due to unforeseen circumstances?

We would even go very much further than this and say that a physician is not obliged to follow the opinion of the majority, and he may, contrary to what his *confreres* think, employ a method that he has good reason to believe good, that is to say that he has employed it on previous occasions successfully and has scientifically justified himself. The case would not be the same where a consultation has taken place, and a treatment having been unanimously adopted, if one of the physicians should modify this treatment without any change taking place in the disease which would justify this attitude. He would in this case seriously endanger his liability, according to our way of thinking, because if an unfortunate result should occur, and if it could be proven that the change in treatment was the direct cause, there is no reason why the victim or those representing him should not bring suit for civil malpractice.

A physician cannot, we think, be held liable for an inopportune operation, no matter what the result may be; but given the danger that surgical operations present in general, the physician should not undertake the intervention until he has obtained the consent of the patient or of those who are authorized to give such consent. If such a consent has not been obtained he should be held liable for the unfortunate outcome of the operation, as was the judgment rendered at Liége not very long ago.[1]

Regarding the conservative Cesarean section, Professor Pinard believes that it may be done without the consent of the mother, because under the circumstances two lives are involved, and he says: "Is it possible to admit that a mother can refuse to allow an operation being performed upon her which is the only means of removing a living child, by invoking the possible danger of this operation, and under the pretext that by killing the child she will run less danger?" In spite of so great an authority, we believe that under the circumstances the consent of the mother to the operation is absolutely necessary and we are decidedly of Noegelé's opinion when he says: "*Mater sola discernendi jus habet, nec ulla in terris potestas jure eam cogere potest, ut de vita dimicet.*" We could not, however, concur with the opinion of Caseaux, who goes so far as to give the right of refusal to the husband, against the wishes of the mother.

The discussion of this question only exists for the conservative Cesarean section, and as far as all other operations are concerned every one admits, both in jurisprudence and medicine, that before undertaking a surgical operation the physician must obtain the consent of the patient or of those persons under whose authority he is placed. However, a physician may consider himself authorized to perform an operation for the relief of an affection which will cause death very shortly, the necessity of which is consequently most evident and cannot be deferred without rendering all curative measures impossible. Under these circumstances one of two things must naturally

[1] Liég. Pas. 90, p. 83.

happen: either the operation will be successful and the patient may have some chance of becoming well, or on the other hand death may be the result. In the latter case it cannot be upheld that the operation could come under the head of malpractice, because the patient without it would have died within a short lapse of time, and one might add on the contrary that the physician should be held morally guilty if, in such a situation, he did not try the only means that he had in his power to save the life of his client. The question now arises as to whether a physician has the right to make scientific essays on his patients, and whether or not he can employ new medicines; and if these essays should result disastrously, can he be tried for malpractice?

We admitted in principle that the physician is free in his choice as to his method; that he alone is the judge of the therapeutical measure that he should employ. To be logical, we should recognize the right of physicians to carry on experiments and employ newly discovered remedies. Experiments, however, may be undertaken with two very different ends in view. They may be undertaken in order to satisfy scientific curiosity, to verify hypotheses, or, on the other hand, they may only be intended to obtain the cure of patients, when after having employed all known systems, the patient's condition still remaining hopeless, the physician takes the chances of an untried medicine. In the first case, quite in accord with jurisprudence, we admit the physician is guilty who makes an essay with an unknown treatment on a patient, simply to satisfy his scientific curiosity. Doubtless, physicians have binding obligations to science, and their rôle is not merely to cure patients or relieve their suffering, but it should always extend and increase the domain of science, every day tearing away a strip of the cloak of mist behind which develops the infirmities of humanity. In this struggle between science and nature, experimentation is a redoubted arm in the hands of the *savant* that cannot be taken from him without running a risk of compromising the victory.

We should not, however, forget that human life is sacred and that nothing can justify any attacks that one might feel inclined to make upon it. It is not permissible to use human beings for experimental fields and to sacrifice life for the satisfaction of a passion, no matter how noble. The cult of science should not demand human sacrifices, and jurisprudence has had occasion to pronounce its decision in a most exciting affair which took place at one of the hospitals at Lyons nearly fifty years ago. An interne of the Antiquaille Hospital asked permission of the attending physician, which he obtained, to inoculate a young subject with pus from certain contagious syphilitic lesions. Brought to trial by the authorities, the interne and visiting physician were condemned by the correctional tribunal of Lyons, and the court in its charge declared that the facts brought against the defendants were all the more reprehensible inasmuch as they were practiced upon a child incapable of any free consent, confided to public charity and to the care of the defendants. Upon the conclusions on which the judgment was rendered the general advocate said: "The conditions of legitimate experimental work in medicine are, on the one hand, the science and the title of the experimenter; on the other hand the cure of the patient as a unique, essential and fundamental end to be obtained by the experiment; such is, for example, the use of a new therapeutic measure in a hopeless disease and when all other means have been employed."[2]

In those cases where the experiment has for its end the cure of the patient, the physician should proceed with the most extreme prudence; and that great authority, Brouardel, has so justly said in his recent excellent work on medical liability that "the essay of new medications can only be undertaken after numerous experiments on animals controlled in the presence of competent persons, capable of lending instantaneously an efficacious assistance." A physician would seriously compromise his liability if, in a perilous situation, he abandoned a rational treatment, admitted by everybody, in order to try a new medication, the ultimate issue of which he could in no way foresee. Tourdes says that "when a disease which menaces the patient with an immediate death, like pernicious fever, has its recognized remedy an imprudent experimentation should not substitute the uncertain tentative for the rational practice of the art." The right of the physician to employ newly discovered drugs with the end of curing his patient does not necessitate the undertaking of hazardous essays, as has been declared in 1873, in a decision handed down by the court of Gray.

Mistakes in diagnosis also constitute a scientific error which escapes the appreciation of the courts. It would be unjust and at the same time would render the practice of medicine impossible to hold a physician responsible for his errors in diagnosis, because often it would hold him liable in a fortuitous case, and no physician would ever dare to undertake the care of a patient under these circumstances, because he would never be sure, no matter how great his attention, devotion and knowledge might be, not to fall under the sword of suits for either civil or criminal malpractice. The human body is replete with mystery, and although it may be said that each disease possesses its characteristic symptoms, it would be quite inexact to affirm that these symptoms are equally evident in each and every patient. They are frequently accompanied by multiple signs due to the nature and temperament of the patient himself, and all knowledge of the physician, no matter how great, is quite impotent in unravelling them. Occasionally by using prudence and allowing the disease to continue its work for several days or weeks, the physician may be able, on account of the advent of other external signs, to acquire some certitude. But it can also happen that these few days of waiting simply render his mistake complete, and here we are dealing with a fortuitous case, a major force, against which all

[2] Lyon., 15 dec., 1859, D. 59, 3.87 et 88.

the will and all the knowledge of the physician will become annihilated.

A few examples of the facility with which an erroneous, and yet justifiable, mistake can be made may not be out of place here, and in many of these it may be seen how easy it is for the physician to be led into an erroneous prognosis and treatment from the very fact of his mistaken diagnosis. Certain cardiac murmurs, produced by an organic lesion, may be badly interpreted and attributed to a simple nervous condition or to marked anemia, from which results a pernicious treatment consisting of cold baths which may produce fatal syncope. Hepatic, lead and nephretic colic are all characterized by a very precise group of symptoms, but there are indefinite forms of these affections in which a correct diagnosis is well nigh impossible. Then, again, take the example of a nephritis at its beginning in a young girl, which may simply be characterized by an extreme degree of anemia, while the usual signs of nephritis may be absolutely wanting. Under these circumstances a physician might easily make the mistaken diagnosis of chlorosis or even pulmonary tuberculosis. The patient then being considered a chlorotic is given iron, or from the fear of tuberculosis a very active forced feeding will be instituted, and whichever it may be, the patient follows a regimen which is absolutely fatal for the undiagnosed renal lesion.

An error in diagnosis is extremely liable to occur in the examination of hysterics, and it is well known that hysteria is a great simulator. Patients present what appears to be various forms of paralysis, epilepsy, a peritonitis or even hip joint disease, when in reality these disturbances are simply of hysterical origin, and if the characteristic signs of hysteria are not very distinct a physician might easily be led into error and order a useless, or even dangerous, treatment.

Syphilitic lesions frequently give rise to mistakes. For example, certain tumors of the brain are merely syphilitic neoplasms, and by the symptoms alone it is quite impossible to know whether one is dealing with a malignant tumor of the brain or a gumma. The diagnosis is, however, essential because with a malignant growth the prognosis is serious and a surgical interference may be required, while in the case of a gumma, antisyphilitic treatment will usually result in a cure. A syphilitic chancre is sometimes difficult to distinguish from a soft chancre or herpes, and a physician consulted in relation to marriage may be seriously embarrassed in his diagnosis.

Oftentimes a diagnosis which could be made by a physician practicing in a large city, possessing all the requisite apparatus for making such diagnosis, will be quite impossible for a country physician to make. For example, it is generally admitted that a differential diagnosis between diphtheria and other forms of throat affections in which a membrane is present is quite impossible unless a bacteriological examination is made; it is consequently evident that many physicians residing in distant parts of the country are unable to have this done.

In surgical practice it would at first sight appear that the diagnosis should be easier, but this, however, is not the case. What is true is that the scientific progress of surgery has rendered many diagnostic errors absolutely harmless, but it cannot be denied that in many cases the difficulties in establishing a correct diagnosis are oftentimes insurmountable, and it would be quite unjust to consider an error of this kind as an instance of malpractice.

But when the diagnostic error is one that should be repaired, as for example, the opening of an artery, the physician who has not done everything in his power to repair the defect resulting from his operation has committed a serious mistake. The greatest physicians and surgeons, both in the past and present, have committed mistakes in diagnosis, such as opening an aneurism of the axillary artery, believing it to be an abscess of the axilla, and cases of simple pregnancy have been diagnosed by eminent surgeons as ovarian cysts in so many instances that they can no longer be counted. To sum up, we would say that an error in diagnosis should not be considered as a case for civil malpractice, because a correct diagnosis is often an impossibility, and it would be rendering the physician liable for a fortuitous case. Although we are of the opinion that it would be dangerous for justice to hold physicians liable for their errors in diagnosis we do not intend to convey the idea that instances of imprudence or negligence, which have for a result an erroneous diagnosis, in cases where a correct one might have been made if the physician had been more attentive, should go unpunished.

As is generally accepted by the jurisprudence of many states of our country, it is out of the province of the court to settle a scientific question, to pronounce upon the opportunity of an operation or to express its opinion as to whether such or such a treatment resulted disastrously or otherwise. We have endeavored to show in this paper that the courts should not emit any appreciation on this point, even after expert opinion has been given. Although it is true that medicine is a conjectural science, it is none the less true that it comprises general rules, verified and admitted by all as axioms. These truths can give rise to no discussion or to any school controversy; they should form the scientific baggage of every physician who is desirous of conscientiously practicing his profession, and he who does not know these rules should be held liable for any harm resulting from such ignorance.

A physician, accused of homicide from imprudence, was tried before the Criminal Court of London. He had administered a powerful potion to his client who had heart disease. In summing up to the jury the legislation and pointing out what questions it would have to consider in order to formulate its verdict, the Lord Chief Justice said: "Every man who practices a scientific profession, every man who undertakes a task which is permitted him by law, or who assumes it himself, is obliged in the accomplishment of this duty or of this task to present the normal ability of a

competent man, if not he should be considered guilty of negligence. The circumstances which constitute culpability do not lend themselves to an absolute legal formula. There is a question of fact which varies with each case. The jury has to decide if, in the present case, the accused has acted with ability or sufficient care."

(To be continued.)

THE DIAGNOSIS OF INCIPIENT PULMONARY TUBERCULOSIS.*

BY JAY PERKINS, M.D., PROVIDENCE, R. I.,
Physician to Department of Pulmonary Tuberculosis (Out-patient), R. I. Hospital.

The report of the Adirondack Cottage Sanitarium for 1903 shows that 158 patients were discharged after treatment for pulmonary tuberculosis, and that of these 59 either had no expectoration or no bacilli in their expectoration when admitted. Dr. Vincent Y. Bowditch in his paper, "Subsequent Histories of Seventy-nine Arrested Cases Treated at the Sharon Sanitarium, 1890-1902," states that in only about one half of the cases was the diagnosis confirmed by the presence of tubercle bacilli in the sputum or by the tuberculin reaction. I am not infrequently asked by physicians if it is possible to make a diagnosis of pulmonary tuberculosis without the finding of bacilli in the sputum; and in the Boston Medical and Surgical Journal, Feb. 25, 1904, Dr. F. T. Lord questions the reliability of a diagnosis of pulmonary tuberculosis without the demonstration of tubercle bacilli in the sputum or of a tuberculin reaction.

Autopsy findings demonstrate that a large percentage, authorities varying from 25% to 80%, of cases coming to autopsy after death from other diseases than tuberculosis present lesions of healed pulmonary tuberculosis. In most of these cases the disease was arrested while in an early stage and without presenting sufficient clinical evidence of tuberculosis to cause that disease to be suspected. We have thus forced upon us the knowledge that from pulmonary tuberculosis recovery frequently takes place, and what is of equal importance that this recovery usually takes place while the disease is in an incipient or early stage. In these cases it is not possible to state what physical signs were presented, but in cases of known pulmonary tuberculosis in which the disease has extended from one lung area to another it has been possible to learn the earliest signs presented by a tuberculous lesion and to follow the development of this lesion. By the aid of autopsies upon tuberculous subjects it has been possible in some cases to compare the physical signs of a recent extension with the actual pathological lesion, and in experiments upon animals the pathological lesions produced soon after infection have been studied. Clinically, every specialist on diseases of the chest has had abundant opportunity to see suspicious cases develop into well-marked tuberculosis. Therefore, while medicine is an inexact science and while mistakes may be and frequently are made by even the best diagnosticians, it is possible by a careful examination and a judgment born of experience to diagnose pulmonary tuberculosis with a reasonable degree of accuracy in a large percentage of the cases which present themselves for examination before bacilli appear in the sputum and without the tuberculin reaction.

With a rapid development of laboratory research there has been a tendency on the part of many to rely too much on laboratory findings and too little on thorough clinical work. Giving full credit to the value of sputum examination and the tuberculin reaction these are but aids to the clinician and not the *sine qua non* of a diagnosis. The sputum examination is so easily obtained that it should be used in every case of suspected pulmonary tuberculosis, and when tubercle bacilli are found there is no doubt but that tuberculosis exists in the respiratory tract. A negative examination, however, means only that the bacilli were not found, and the bacilli may be absent from the expectoration until the disease is advanced. We cannot, therefore, consider the absence of the bacilli in the sputum as of any value in an incipient case. The tuberculin test is of great value in doubtful cases but it needs to be used very carefully and with the patient under skilled observation in order to obtain its full value. There is sufficient prejudice (unfounded, I believe) against its use, and sufficient care and observation needed in its execution to make it impracticable in a large percentage of cases except in institutions; nor do I believe it to be necessary in a large percentage of the suspected cases in which tubercle bacilli cannot be found. As the test is frequently used, I have as much confidence in the opinion of Dr. Bowditch and of the physicians at the Adirondack Cottage Sanitarium, when they say that tuberculosis is present as I have in the test.

A diagnosis of pulmonary tuberculosis in its early stages can be made by judiciously connecting the physical signs and clinical history with the pathological lesions and systemic effects of a slight tuberculous infection. I will not here go into the methods by which infection takes place, but will consider the condition brought about by the infection. In early pulmonary tuberculosis the signs which we get are not produced directly by the tubercles but by the changes which take place in the tissue of the lung and accompanying the tubercle, notably caused by the stimulation or irritation of the toxins of the tubercle bacillus. There is an infiltration or thickening of the alveolar walls surrounding or adjoining the smaller bronchial tubes, thus giving a more or less complete consolidation or infiltration of the affected portion of the lung. If the lung reacts against the tuberculous toxin, a fibrous tissue formation accompanies this infiltration and the extension of the disease is held somewhat in abeyance, and breaking down or ulceration does not readily take place. If the lung does not react by the formation of fibrous tissue the tubercles soon break down, tuberculous

* Read before the Providence Clinical Club, October, 1904.

ulcers are formed and the tuberculous matter expectorated unless the bronchial tubes are occluded. In the cases which give a fibrous thickening we have the bronchial tubes patent and more or less of the lung tissue consolidated, and this gives us the physical signs which, according to the laws of physics, should accompany such a consolidation; that is, the normal vesicular murmur is replaced by breath sounds more or less bronchial in character. The first change to be noticed is usually an intensified expiratory sound. Instead of hearing simply the normal inspiratory vesicular murmur we get in addition a slightly tubular or harsh expiratory breath sound. If we get the case in a sufficiently early stage, this may be all that is to be heard. The next change in breathing is an increase in the tubular character and roughness over the normal sound of inspiration and also a still further increase in the length and tubular character of the expiratory sound. In this stage a few rales may or may not be present. They are not certain to be heard and are not pathognomonic if heard. Accompanying the harsher breath sounds there will be also an increase of the transmitted voice sounds, the amount of the increase depending as much upon the nearness of the lesion to the lung surface and upon the presence or absence of pleural adhesions as upon the extent of the disease. Changes in the percussion note cannot usually be detected in this early stage unless pleural adhesions are present over the diseased area or unless the infiltration is near the surface of the lung. The most frequent location for such a lesion is at the apex of the lung, and the sounds are heard first above or just below the clavicle or above the spine of the scapula of the affected side. It should be borne in mind that at the right apex the breathing is usually a little harsher and the voice sounds are transmitted more distinctly even in health than on the left side. In those cases, however, in which the lung does not react by the formation of fibrous tissue, instead of getting the harsh breathing and the abnormal transmission of the voice sounds we get all of the breath sounds suppressed, and and upon forced inspiration or following cough we hear moist rales, and in extreme cases may obtain a suction sound or click, especially following cough. As in the fibrous form the percussion note is variable, depending upon the distance of the lesion from the surface and the amount of compensatory emphysema surrounding the diseased area. The difference in the signs obtained in the two forms depends upon the absence or presence and quality of secretion in the bronchial tubes, one extreme giving harsh respiration, increased vocal resonance and fremitus and no rales, the other extreme giving diminished respiratory sounds, diminished vocal resonance and moist rales. Any degree of variation between these two extremes may be found, depending upon the amount of fibrous tissue formation or the amount and consistency of secretion present. In the fibrous form we are not as likely to obtain bacilli as early in the disease in point of time as in the non-fibrous form, nor are we as likely to see a lack of proper expansion or a sinking in of the chest as early as in the fibrous form. Another physical sign, which is frequently present in these early cases when they come for examination is a rise of temperature sometime during the afternoon, this rise being less marked in the fibrous form. Hemorrhage may take place early in the disease even before any physical signs can be obtained by oscultation or percussion, and even in these hemorrhagic cases it may not be possible for a long time to find tubercle bacilli in the sputum. Any expectoration of blood, unless some cause for the hemorrhage can be found in the mouth or throat, is a very strong presumption of pulmonary tuberculosis. Tubercle bacilli may be found in the sputum without any physical signs being detected in the lung. In the earliest stages of the disease which can be detected by physical examination, it is possible for the signs to be obscured by improper breathing or by temporary conditions leading to imperfect expansion of the chest, as caused by neuralgia in the chest wall, by pleurisy or from constriction of the chest, or we may get a temporary collection of mucus in one or more bronchioles, but repeated examinations will overcome all of these obstacles to a correct diagnosis. In connection with these signs we also frequently get marked assistance from the clinical history, these symptoms being less marked in the fibrous form than in the non-fibrous. There is one group of symptoms which is very commonly present, — malaise, indigestion, chlorosis, loss of strength and loss of flesh. In a large number of cases we get a history of a hacking cough, especially in the morning, or of repeated colds, associated with which there is usually a loss of strength. Assistance is frequently obtained by a knowledge of exposure to infection, or by a history of numerous cases in the family, if the element of contagion from one to another can be eliminated.

With the physical signs and symptoms as outlined above, these signs and symptoms persisting for any length of time, I believe that physicians constantly examining tuberculous patients are fully justified in stating that a patient has tuberculosis, even if the bacilli are not found in the sputum and without using the tuberculin test. There is a class of cases in which the lesion is so deeply seated that we cannot get these signs but in which we do get some of the symptoms, and in these cases the tuberculin test is of inestimable value. The criticism, if any, which I should make is not that certain cases are classed as tuberculosis without the tuberculin reaction, but that certain ones are said not to have tuberculosis without the use of the tuberculin test.

In closing, I would emphasize the following points:

First: Competent observers can by observation and repeated examinations make a reasonably accurate diagnosis of incipient pulmonary tuberculosis without the finding of tubercle bacilli in the sputum or the use of the tuberculin test.

Second: When there are persistent symptoms of a mild toxemia as shown by malaise, chlorosis

and indigestion, or a daily rise of temperature, with or without cough being present, especially if combined with any loss of flesh or strength, in the absence of any other manifest cause, even without tubercle bacilli being found in the sputum or physical signs as outlined above, tuberculosis should be suspected and its presence or absence verified by the use of tuberculin.

Third: The presence of moist rales, when localized, are sufficiently indicative of pulmonary tuberculosis to make careful watching and repeated examinations imperative, but are not by any means pathognomonic of pulmonary tuberculosis unless persistent and accompanied by evidences of a mild toxemia.

Fourth: A negative examination of the sputum for tubercle bacilli is of no value. In all suspicious cases many examinations should be made. Tubercle bacilli may be absent from the sputum of a tuberculous case because none of the tubercles are softening and communicating with a bronchial tube, or because there is such a profuse bronchial secretion that the bacilli are relatively too few to be demonstrated microscopically, though an inoculation of the same sputum into the abdominal cavity of a guinea pig might show their presence.

Clinical Department.

CLINICAL REPORT FROM THE WARD FOR SKIN DISEASES AT THE MASSACHUSETTS GENERAL HOSPITAL.

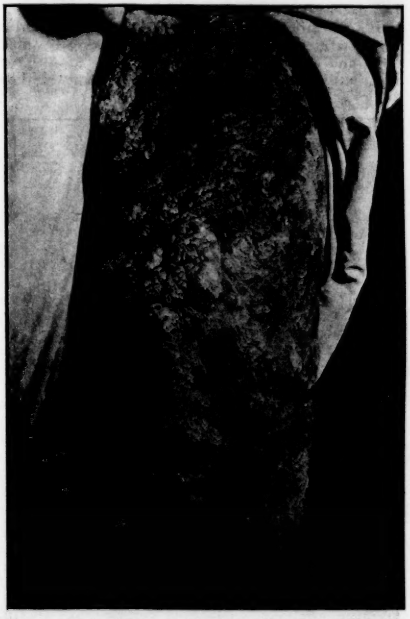
BY HARVEY F. TOWLE, M.D., BOSTON,
Assistant Physician for Diseases of the Skin.

A CASE OF MYCOSIS FUNGOIDES.

Case I. Sister F., age sixty-two. Family history negative except that father died at about forty of some asthmatic trouble. Previous history negative.

Present illness began twenty-three and a half years ago when a palm-sized red spot appeared on the outer side of the right thigh. This spot persisted a long time, how long patient cannot say as there were no subjective symptoms to call her attention to it. After its disappearance there was an interval of freedom. Two and a half years after the appearance of the first spot, or twenty-one years ago, a second spot appeared on the left ankle which was red, itching, scaling and painful. For a few weeks at its beginning this patch bore small blisters which were painful. When the blisters had attained the size of a pea they burst and with the bursting the pain ceased. This was the only time in the course of the whole disease when there was any vesiculation. The evolution of this second patch was very slow but it finally did disappear. From this time on patches which were red, scaling and slightly indurated and which pursued this same sluggish course appeared on various parts of the body. Gradually the evolution of the patches became slower and slower until for the last eight or nine years none have disappeared. Gradually also the induration of the patches became more and more marked until the skin was much thickened and very scaly. Eight years ago a reddened patch appeared on the left knee. For five years it was merely red and scaly with an unbroken skin beneath the scales. Three years ago it was noticed for the first time that the skin was broken. Thenceforward the ulceration progressed steadily both in extent and depth. Its edges became rolled up and much elevated above the surrounding skin. About a year ago tumors appeared for the first time, suddenly and chiefly over the extremities, sparsely on the body. The general health has been unimpaired throughout.

On examination the scalp was found to be completely covered with large, white, thick scales beneath which the skin was reddened. There was marked thinning of the hair everywhere. The skin over the ears was red, thickened, roughened and covered with fine scales. The skin of the face was everywhere involved except over a few small areas. The process was most marked, however, over the cheeks and right eyebrow. Here the skin was much reddened and thickened and covered with large white scales, adherent by one edge and easily detached. On the right eyebrow was a



Mycosis Fungoides.

patch about one and a half by two and a half inches, which was superficially excoriated in small spots from which oozed a clear serum. The patch was not elevated and bore many large papery scales. Over the rest of the face the skin was dry, red, scaly and somewhat thickened. The neck, front and back, was covered by a red, thickened, scaling and elevated patch which was so extensive that scarcely any normal skin remained. The skin of the back was covered with numerous patches of a similar character of all sizes and shapes. These patches coalesced on all sides with other patches and thus inclosed irregular areas in which the skin was either entirely normal or at most erythematous. The involved skin was red, elevated above the surface about one sixteenth of an inch, covered with large papery, easily detachable scales, adherent by one edge. On close examination it was seen that the patches were made up of large papules and were surrounded by a narrow zone of redness. The skin of the

chest, abdomen and arms was almost universally covered by similar red, rough, scaling, elevated bands which ran in all directions and crossed and recrossed each other, inclosing islands of skin which were less involved but which were yet reddened and scaling. The skin of the hands was universally involved and much thickened, red, scaling and fissured. On the thighs were the same elevated and thickened patches and bands. But in addition there were numerous tumors which arose from the patches already described. These tumors were, in general, of an oval shape, with rounded tops, projecting from one fourth to one half inch above the surface of the patches and averaged two or three inches in length and one half to one inch in width. Some were comparatively solid, others were made up of long finger-like projections packed closely together so that the surface had a crackled appearance. The latter suggested somewhat in shape and appearance a macaroon. These tumors were discrete and as already stated usually arose from skin already thickened and elevated. Occasionally one arose from apparently healthy skin. There were many of these

Mycosis Fungoides.

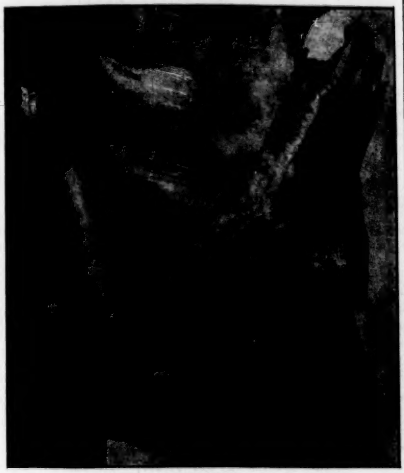
tumors on the arms and, to a less degree, on the lower legs. The feet were dry and much fissured. Over the left patella and just above and to the outer side on the thigh were two ulcerated lesions. These were irregularly circular in shape. The lower had a diameter of three inches, the upper of five inches. Their edges were elevated about one eighth of an inch above the surrounding skin, were of a purple color, and sloping. The centers of the lesions were ulcerated. The bases of the ulcers were slightly irregular and papillomatous and secreted an abundant sero-pus. A blood count showed present polynuclears 63.5%, lymphocytes 32.5%, eosinophiles 4%. Two pieces taken from the edges of the tumors were examined microscopically. The appearances were the same in both. There was tremendous hyperplasia of the rete. The interpapillary prolongations were several times their normal length, and were thin and pointed. There was a corresponding increase in the length of the papillæ. There was nothing which could be called an infiltration of the corium.

Under the x-rays the ulcers of the leg healed promptly. Tumors in several regions were also exposed to the x-rays. All have improved greatly while many have disappeared wholly. An area on the forehead which grew red and threatened to break down was also exposed and healed rapidly. On other parts the tumors have shrunk very much under salicylic acid plaster but have not disappeared. The same treatment has also had a favorable effect upon the thickened skin. Before using the rays and the plaster the patient had been given various forms of internal treatment but without effect.

SCLERODERMA.

CASE II. Female, admitted to the Dermatological Ward, April 20, 1904; age nineteen. Family history negative. Previous history negative. Present illness began three years ago with the appearance of sores around the ends of the fingers and on the knuckles. At the same time the fingers felt cold and turned blue and were painful. The fingers remained sore for a year when they cleared up. Before the fingers were entirely well sores appeared on the large joints of the extremities, both upper and lower, and these joints have remained sore ever since. One year ago she noticed that her back and legs were becoming so stiff that she had difficulty in sitting down. Soon after this the fingers became stiff and finally contracted. A little later the forearms also became stiff. Two years ago her skin, which she states was formerly fair — she is of Indian blood — became universally pigmented. For nine months this pigmentation remained unchanged when small white spots began to appear. These white spots gradually increased in size and new ones were continually appearing. The general health was not much affected at first and, even at the time of admission, although she was much emaciated, she always said that she felt well. Examination showed a patient who was markedly emaciated. The arms and legs particularly were "skin and bones." Extension of the arms at the elbows was impossible beyond a right angle. The fingers were flexed at the second joint and motion in any direction was practically absent. Like the arms at the elbows, the legs were drawn up at the knees and extension beyond a right angle was impossible. The tendons of both arms and legs were tense and prominent. The motion of shoulders and hips was but slightly impaired. Over the dorsal and lumbar regions of the spine motion was much impaired. The heart, lungs and urine were negative. The skin of the whole body presented a speckled brown and white appearance, except the back which was uniformly brown. The face appeared to be white but close inspection showed many pea-sized patches of brown. The ears too appeared white. From the outer edge of the eyes to the ears and from the scalp to the edge of the jaws the color was chiefly brown. But scattered through the brown were many lighter spots which are either circular in shape or in the form of short bands, either discrete or coalescing, midway between a white and a brown in color. The skin over these areas was atrophied but was depressed, little if at all, below the surrounding skin. The upper half of the neck was quite brown but the lower half showed light areas similar to those on the neck. The skin of the chest

was thin and drawn tightly over the bones. There were more and larger white areas over the front than over the sides. The skin over the sternum was almost entirely white, having only a few small brown spots. Passing from the central line of the body outward the white spots grew smaller and fewer until far out on the



Scleroderma.

sides the color was uniformly brown. On the abdomen also the white areas were larger and more numerous in the center than on the sides. There was also much speckling of the extensor surfaces of the arms and legs and the inner surface of the left thigh. These white areas occurred everywhere in round spots or in bands or sheets and varied in size from a pin's head in the smallest to areas four or five inches wide and six or seven inches long. In them the skin was atrophied, of a dead white or brown white color, not much if at all depressed. Here and there an area was bordered by a line of hyperpigmentation, which was quite marked. Over all the large joints, such as the wrists, elbows, knees, and many of the knuckles, on the outer sides, were wart-like crusted lesions which sometimes projected about a quarter of an inch above the surface and measured a half inch in diameter and which were situated on a reddened and indurated base. The skin over the outer two thirds of the fingers was white and atrophied. The only points of interest noted during the patient's hospital stay were that on May 18, the toes on the left foot became blue and painful. It was some days before this condition subsided. May 28, it was noted that a gangrenous spot had appeared on the ball of the left big toe. The general health had gradually grown worse until when she was taken home by her people she was quite weak.

FOUR CASES OF LAPAROTOMY DURING TYPHOID FEVER: WITH RECOVERY.

BY R. R. FITCH, M.D., BOSTON.

THE following cases are from the services of Dr. H. F. Vickery and Dr. J. J. Minot, at the Massachusetts General Hospital:

CASE I. Harry O., nine years old, born in Russia. Gave a history of two weeks' duration; headache, feverishness, loss of appetite and diarrhea, being the chief complaints.

At entrance his temperature was 102°, pulse 120, respiration 20. White count, 11,400. Widal reaction positive in dilution of 1 to 50. Urine not remarkable. Blood pressure 87 mm. by the Riva Rocci method.

The child was poorly developed and nourished. Nothing abnormal was found in the throat or chest. The abdomen was somewhat distended and tympanitic, with slight general tenderness. There were several rose spots but the spleen could not be demonstrated as enlarged or felt. Patient's mental condition was dull, but he was apparently comfortable.

The child took baths and nourishment only fairly well. On the second night after entrance he reacted even more poorly to bath than on previous occasions, and his pulse became small. However, he soon went to sleep and was quiet until 7.30 the next morning, when he complained of slight abdominal pain which was not sufficient to be reported by the nurse. The pain was unrelieved by a turpentine stupe. Two hours later the entire abdomen was acutely tender, somewhat rigid and not distended. The liver dullness was not diminished, the blood pressure was unchanged, and the white count had fallen to 4,200. His pulse became somewhat more rapid and of smaller volume. Temperature and respiration were practically unchanged.

Operation by Dr. S. J. Mixter, four hours after onset of abdominal pain, showed gas and intestinal contents in the peritoneal cavity. A perforation of the intestinal wall was found a short way above the ileo-cecal valve. This was closed and the peritoneal cavity washed out with normal saline solution and drained.

The temperature reached normal on the day after operation and the patient had an uninterrupted convalescence.

CASE II. Thomas W., twenty years old, born in Russia. Entered the hospital having been sick for five days. At entrance temperature, 104; pulse, 100; Widal reaction, positive. He ran a typical course of typhoid fever for the next two weeks, when his temperature began to come down, but he had a recrudescence with temperature going to 105°. The temperature remained high for five days and then rapidly fell, reaching normal on the twenty-first day after entrance. The temperature ranged from 98° to 100° for four days, when it began to go up again, reaching 102.4° in three days. At this time there was slight tenderness, dullness and resistance just inside the crest of the right ilium. These signs steadily increased until the next morning when there was a distinct mass palpable in this region. White count, 6,000.

Operation by Dr. G. W. W. Brewster. The mass proved to be an appendix abscess. The appendix was removed and the wound drained. The temperature remained normal after operation and the patient was discharged well after an uneventful convalescence.

These two cases, with one of perforation and another of ruptured pus tube, both operated upon by Dr. C. L. Scudder and ending in recovery (to be reported in detail by the operator) were the only cases of typhoid fever in this hospital during the past summer, which came to laparotomy, and are illustrative of the good results of early operation in such cases.

Reports of Societies.

AMERICAN DERMATOLOGICAL ASSOCIATION.

TWENTY-EIGHTH ANNUAL MEETING, HELD AT NIAGARA FALLS, N. Y., JUNE 2, 3, 1904.

(Continued from No. 22, page 605.)

FIRST DAY — (Continued).

A CASE OF REINFECTION OF SYPHILIS.

DR. H. G. KLOTZ of New York: The patient was a German furrier, who first came under the author's observation in the summer of 1882, when he was admitted to the German Hospital to be treated for a large, gummatous infiltration over the middle portion of the sternum and the adjacent ribs on the right side, several gummatous intumescences of the right tibia, and a number of peculiar strands and plates imbedded in the external muscles of both thighs. He acknowledged having had gonorrhea when he was seventeen years of age, but did not give a history of chancre or secondary symptoms. In spite of this statement, the affection of the sternum and the adjacent ribs admitted of no other interpretation than that of syphilitic gummatous periostitis. The only other thing to be thought of was a tubercular affection, but that would not have healed under anti-syphilitic treatment alone, as the lesions in this case did. In 1901 the patient was re-infected and developed a typical chancre, followed in due course by secondary symptoms. This was more than six years after the symptoms of the previous disease had absolutely disappeared.

REASONS FOR CONSIDERING DERMATITIS COCCIDIOIDES AN INDEPENDENT DISEASE.

DRS. DOUGLASS W. MONTGOMERY and HOWARD MORROW of San Francisco: The authors stated that the following points were characteristic of coccidioides as against blastomyces. The cultures were characteristic. The organism had a double cycle of development, one cycle differing absolutely from the other. There was no budding formation either in the cultures or in the tissues. There was endogenous spore formation in the tissues, and this appeared to be the sole mode of reproduction in the tissues. The capsulated bodies in the tissues were comparatively large and were almost always circular. In animal experiments, the testicle was the favored seat of the disease. The infection strongly tended to become generalized. The prognosis was absolutely bad. The administration of potassium iodide had no control over the disease.

DR. GILCRIST thought that dermatitis coccidioides was a sub-division of dermatitis protozoica; the latter was a broader term and he saw no reason why we should change the name of these cases. They probably all belonged to the one group of blastomycetic dermatites.

DR. FRANK H. MONTGOMERY of Chicago said that in some cases of blastomycosis, the systemic symptoms preceded by several months the cutaneous lesions, and in one case recently reported in Chicago there were no cutaneous lesions whatever. In other cases, typical metastases had been demonstrated. As to the cultural features of the blastomyces, while as a rule the growth was quite uniform on a given culture media, the organism differed considerably in different cases and on different culture media.

DR. HYDE said that while this subject was still somewhat obscure, he thought that eventually it would be proven that they were dealing with the same organism, which had a different mode of development and growth.

DR. SCHAMBERG referred to an ulcerative case of blastomycosis which proved utterly refractory to the use of potassium iodide and the x-rays. There was not only no improvement, but a gradual extension of the lesions during the employment of these measures.

DR. SHEPHERD said he could also testify to the inefficiency of potassium iodide in some cases of blastomycosis.

DR. STELWAGON mentioned a case in which the improvement under the iodide of potash only continued up to a certain point. The patient died in the course of two or three years from some complication.

DR. D. W. MONTGOMERY, in closing, said he thought the distinction between blastomycosis and dermatitis coccidioides would never be broken down. He regarded them as two separate diseases, although the respective micro-organisms resembled each other. As far as potassium iodide was concerned, it invariably gave no results in coccidioides, whereas it frequently gave good results in blastomycosis.

SOME NOTES CONCERNING DOMESTIC REMEDIES FORMERLY USED IN SKIN DISEASES.

DR. JAMES C. WHITE of Boston: This paper mentioned the principal household remedies formerly employed in the more common affections of the skin, generally of a vegetable nature, which had been largely supplanted in later days by the many "proprietary" cures so widely advertised. To illustrate this, Dr. White called attention to the fact that in the last report of the Massachusetts Board of Health, a list of twelve well-advertised hair restorers containing acetate of lead was published; also nine cosmetics for the face, containing corrosive sublimate to the extent of from one to fifteen grains to the ounce, and thirty-three "sarsaparilla remedies" and "blood purifiers," holding potassium iodide in solution. This gave some idea of how extensively diseases of the skin were being treated amongst us independently of professional advice, and showed conclusively that the old-time domestic remedies had been largely displaced by the inventions of the modern caterer to the credulity of the public in such matters.

XANTHOMA MULTIPLEX: HISTOLOGY OF THE PALMAR STRIAE.

DR. HENRY H. WHITEHOUSE of New York: The writer stated that the subject of xanthoma was one of the most interesting in the entire field of dermatology. This was largely due to the fact that it was one of the rarer affections of the skin and that its nature was so little understood. The author reported a case of xanthoma multiplex occurring in a robust woman, thirty-four years of age, with tuberose lesions on the elbows, and xanthoma planum lesions in other positions than the eyelids, which were free. This patient was otherwise apparently in good health, with the exception of a rheumatic heart. There was no discoverable liver, kidney or visceral lesion and no jaundice. The eruption was composed entirely of plane and nodular lesions, with no disseminated papules so often seen in this variety of the disease. In regard to the symptom of jaundice, Dr. Whitehouse said that all authorities seemed to agree that jaundice, or a xanthomatous dyschromia was almost always present in xanthoma multiplex. It was strange that in the seven cases he had observed personally — four males and three females — the symptom jaundice was entirely absent. They were all mild cases, however, and if the belief of some authors was correct that the jaundice was due to obstructive xanthomatous growths in the bile ducts, a ready explanation of his observation was afforded. The lesions in Dr. Whitehouse's case improved markedly under the use of the x-rays.

ERYSIPELOID.

DR. THOMAS C. GILCRIST of Baltimore: This paper contained the record of 323 cases of erysipeloid following injuries produced by handling live crabs. The disease was rather common in Baltimore when crabs were in season. There was a fairly constant incubation period of two or three days, followed by a rapidly spreading erysipelatous eruption. Histologically, the sections showed an acute inflammatory process in the upper half of the corium and in the epidermis. All cultures proved negative and inoculation experiments were unsuccessful. No micro-organisms could be found. Inoculation into a susceptible person of juice from the crab was also negative. Etiologically, the disease was thought to be due to a ferment.

DR. BOWEN said these cases were occasionally met with in Boston, usually in persons who handled fish.

DR. ZEISLER did not see the necessity of calling this affection erysipeloid, as it fitted entirely into the group of eruptions known as toxic erythemas. A great many similar eruptions were known to occur after infection with various animal poisons.

DR. KLOTZ said he had seen several cases of this kind in which the infection was traced to preparing poultry, particularly removing the entrails. In the treatment, the local application of a $\frac{1}{1000}$ bichloride solution was usually efficient.

DR. GILCRIST, in closing, said the name erysipeloid was first used by Rosenbach, because the eruption looked like erysipelas. It was doubtful whether it should be classed under the term toxic erythema, because it had not been proven that it was due to a toxic organism.

(To be continued.)

Recent Literature.

The International Medical Annual: a Year Book of Treatment and Practitioner's Index. By various contributors. Twenty-second year. Illustrated. New York: E. B. Treat & Co.

The twenty-second annual issue of this year book offers few changes in form or principles from immediately preceding years. In spite of the rapid accumulation of medical literature, the editors have succeeded in keeping the text essentially within the limits of previous editions. The aim of this edition has been to lay stress upon practical matters in relation to professional work, and to supply sufficient illustrations to amplify the text. The illustrations in general are to be commended, and the book as a whole, as heretofore, fills a place of usefulness as an epitome of progress.

Hare's Practical Therapeutics. A Textbook of Practical Therapeutics; with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With special chapters by DRS. G. E. DE SCHWEINITZ, EDWARD MARTIN and BARTON C. HIRST. New (10th) edition, much enlarged, thoroughly revised and largely rewritten. Octavo, 908 pages, with 113 engravings and 4 full-page colored plates. Philadelphia and New York: Lea Brothers & Co., Publishers. 1904.

Ten editions of a medical book of any work is a worthy record. Dr. Hare's Textbook of Therapeutics has reached this distinction. The new edition appears with a complete revision of the text and an entire resetting of the type. The form is as heretofore,— the discussion of drugs as such in the first part, and a description of the treatment of individual conditions and various therapeutic procedures in the second. In our experience this is a useful division of the subject, and no doubt it has been the experience of others, hence its continuance. The book is one peculiarly adapted for ready reference, is well illustrated, and, although not discussing pharmacological problems to any degree, is yet a practical and useful working volume for which alone the author intended it. We commend this new edition to the notice of our readers.

Diseases of the Nervous System. By H. OPPENHEIM, M. D. Translated and edited by EDWARD E. MAYER, A.M., M.D. Second American edition, revised and enlarged. 8vo. pp. 953. With 343 illustrations. J. B. Lippincott Company. Philadelphia and London. 1904.

The third edition of Oppenheim's *Lehrbuch*, greatly augmented in the eight years that had elapsed since the first edition was published, has won general recognition as one of the best, if not the best, manual of nervous diseases extant. When the first edition of this translation appeared we expressed a regret that the translator and publishers had not translated the work as a whole. This regret is intensified on examination of what purports to be a translation from the third German edition. The work has been condensed into about two thirds the bulk of the original. That condensation is sometimes of advantage is obvious. The peculiar merit of Oppenheim's work, however, is that in almost every chapter we find reference to the latest researches, even on the less important points, and many observations upon those points drawn from the author's own unpublished investigations, so that the book is of unusual value for reference to obtain the latest and most exhaustive information put in a very concise form. In the process of abridgment the translator has managed to eliminate a considerable portion of this, so that we get the essential and commonplace statements about the disease without these valuable *obiter dicta*. Worse than that, he has made additions of his own, which in many instances are not differentiated from the original. Many illustrations have been omitted, others marred in the reproduction, and others still inserted without a word of distinction. Finally, the translation is often inaccurate and usually couched in clumsy English. A good and complete translation of Oppenheim is greatly to be desired. This must be condemned as an unfair and inadequate presentation of an excellent work, another example of the old adage, "*Traduttore, traditore.*"

THE BOSTON
Medical and Surgical Journal.

THURSDAY, DECEMBER 8, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

REPORT OF THE SURGEON-GENERAL OF THE NAVY.

THE annual reports of the surgeon-generals of the United States Army and Navy reflect the progress of medicine in general. Each year demonstrates the fact that the best medical methods are being more and more completely introduced into the public service. With this must come adequate recognition of the dignity of the medical profession in its relation to the army or navy, and a consequent desire on the part of young medical men to accept positions under the government.

We have before us the annual report for 1904 of the surgeon-general of the United States Navy, and a perusal of its pages demonstrates still further the truth of what we have just said. Regarding the medical corps, it appears that at the end of 1903 there were but two vacancies. Owing to the annual increase allowed by Congress and to certain retirements for disability, there were at the beginning of 1904 thirty vacancies. Ninety-nine applicants appeared for examination, of whom but twenty-three were found qualified and given commissions. In spite of the fact that, owing to legislation of 1903 increasing the number of surgeons and their rank, a closer parallelism was brought about between the army and navy, nevertheless unexpected difficulty was experienced in securing qualified men. On this matter the report says:

"There has always been difficulty in securing qualified medical men for the navy. Recent legislation, giving assistant surgeons of the navy the rank, pay (less 15% for shore duty), and allowances of assistant surgeons of the army, has more nearly equalized the advantages offered by the two branches of the military service. There is sound reason for a comparison of the status and pay of these two grades, inasmuch as they perform the same kind of service for the government, are drawn from the same civilian source, have practically identical qualifications, and it would seem best for the public service that there be equalization of their emoluments in every detail. The highest interest of the entire naval personnel, official and enlisted, is too seriously involved in the success of the effort now being made to secure and maintain the highest state of professional efficiency in the medical corps, for it to be wise to place it at a disadvantage, in comparison with the medical staff of the army, by offering inferior inducements to civilian medical men who might be inclined to enter the naval service."

This reluctance to enter the medical service of the navy is altogether to be regretted. That there are many qualified men who do not apply, and yet who do not succeed in civil practice, must be unquestioned. More inducements must evidently be offered if the naval service is to become popular. These will be forthcoming. The bureau, for example, renews its former recommendation that the titles of the different grades of the medical corps be changed in such a way that the official rank of physicians be recognized as well as their professional standing. A good report is made of the progress of the naval medical school. The students show appreciation of the privileges afforded them, and their work has been such as to bring encouragement to those in charge and to establish the school on a firm basis. The regular work of instruction has been supplemented by lectures given gratuitously by men eminent in medicine and science.

The department has approved the employment of trained women nurses as a part of the medical department of the navy, eligible for service at naval hospitals, on board hospital ships and for special duty. It has been demonstrated to the satisfaction of those in authority and through the experience of the army medical establishment that women may with advantage be employed in institutions under military control. The superiority of women over men in much of the work of nursing can no longer be questioned. The recommendation is, therefore, renewed that Congress be asked for legislation authorizing the employment of female nurses in the navy. Recommendation, as already twice made, is again presented for the authorization of the employment of dentists for service in the navy. It is estimated that the number should be in the proportion of one dentist for every thousand men, and that they should not exceed thirty in all. As we have recently had occasion to point out, the importance of the care of the

teeth and of the mouth cavity generally has been underestimated. We have no doubt that much illness might be obviated were the teeth of enlisted men as carefully attended to as their other bodily needs.

Another step in advance is the adoption of a policy which permits the issuance of microscopes as a part of the medical outfit of a vessel or command. The wide influence of such action in cultivating a spirit of exact observation and a general improvement in medical methods cannot be doubted. Every effort has also been made to encourage officers of the medical corps to keep in touch with progress by attending medical meetings held by physicians in civil practice. Many invitations have been extended to the medical department of the navy from various associations, and delegates to represent the service have been sent to take part in the discussions.

The greater part of the book is taken up with statistical details of disease and by the individual reports of surgeons of the various vessels and posts. In general, as Surgeon-General Rixey maintains at the conclusions of the report, a comprehensive review of the work shows a high grade of efficiency in the medical department.

ELECTRICITY IN MODERN LIFE.

Until we are suddenly brought face to face with its danger, we are apt to overlook the constant menace which electricity, as now universally used, presents. Occasionally an accident happens which is put down to carelessness or palpable negligence, and such events are soon forgotten. Not long since an accident happened in a New England town which cannot be placed in either of these categories. The circumstances in brief were that a man holding in one hand a desk telephone attempted with the other to turn the switch of an ordinary incandescent lamp, with the result that he was instantly killed. It is reported that his clerk was seriously burned in attempting to drag his body away from the electric circuit. This incident very naturally came with a certain shock to the entire community, inasmuch as the apparent conditions under which the fatality occurred are often duplicated in every-day life. So far as we are aware, the investigation into the exact cause of this deadly short circuit has not been made public. It will be awaited with much interest, and we suspect will show that the electric current, through some means as yet unexplained, was far more powerful than is ordinarily used in buildings. In any case the possibility of such an accident brings us face to face with the fact that we are never quite free from danger while in the presence of powerful currents of electricity. The lesson is brought home to us that our extraordinary control of this force, as of others, is simply attained by an absolute subservience to its laws. We have no doubt that temporarily at least renewed care will be taken to prevent the possibility of the recurrence of this unique accident, but we cannot help looking with some trepidation into the future when, if signs may be trusted, electricity will become far more widely used even than at present.

THE DISCOMFORTS OF NOTORIETY.

That notoriety is not always beneficial in medical treatment is illustrated by the following fact. According to a London letter, recently published in the *Medical News*, it appears that all but one of the fishermen wounded in the North Sea by the Russian fleet were placed under treatment in the Royal Infirmary at Hull. The exception to this humane policy was one unfortunate man who was taken to London to be treated there. The necessity for this was not apparent, but it is reported that through the influence of the Queen a message was sent to Hull stating that a bed was ready in the London Hospital for a patient. Following the good offices of the Queen, it was natural that a patient should have been sent from Hull to occupy this bed. Unfortunately, however, he was suffering from a severe comminuted fracture and from a serious wound of the neck. The delay and exhaustion incident upon the railway journey to London resulted in sepsis when he was finally admitted. As the reward for this somewhat unnecessary journey, the patient was visited by Sir Frederick Treves, and we trust has finally recovered. We speak of this not as the slightest reflection upon English methods, but merely as exemplifying the misfortune which not infrequently comes from notoriety. We have no doubt that this particular patient might have been treated with equal skill at Hull, and saved the discomfort of a long journey evidently arranged with the best intentions, but clearly unreasonable under the circumstances. The world has moved on since this much-talked-of incident in the North Sea, but for a time the unfortunate fishermen who were injured by the Russian shells were more widely talked of perhaps than any other patients, either in England or America. That this public

solicitude, through royal favor should lead to the positive discomfort of one of the unfortunate sufferers is worthy of our consideration now that the excitement is past.

MEDICAL NOTES.

INDIA'S STATISTICS. — It is stated that statistics for the year 1902 show that the population of India has increased more than 40,000,000 since 1891. In the latter year the census showed 294,361,056. In the year 1902 approximately 36,000 persons were killed by wild animals. Deaths caused by reptiles numbered upwards of 23,000 and by tigers upwards of 1,000.

LABORATORY AND INFIRMARY AT THE PHILADELPHIA ZOOLOGICAL GARDEN. — It is stated that an infirmary and pathological laboratory is in operation at the Philadelphia Zoological Garden. The objects to be gained are a study of the diseases peculiar to animals and work in comparative pathology. The director of the laboratory is Dr. Charles B. Penrose.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Dec. 7, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 45, scarlatina 19, typhoid fever 17, measles 6, small pox 0.

TRUSTEES OF MASSACHUSETTS SCHOOL FOR CRIPPLED CHILDREN. — Governor Bates has appointed the following trustees of the Massachusetts School and Home for Crippled and Deformed Children: Dr. Edward H. Bradford of Boston, chairman; William Endicott, Jr., of Beverly, Hon. Alfred S. Pinkerton of Worcester, Dr. William A. Morrison of Boston, and Leonard W. Ross of Canton. These trustees are appointed under an act which permits them to construct a home for not less than three hundred children, officers and attendants, and to furnish and equip this building at a maximum cost of $300,000, subject to the approval of the governor and council. The State Board of Charity will have general supervision of the institution.

BEQUESTS. — By the will of the late Charles E. French, among public bequests amounting to about $200,000, the following are made to hospitals or allied institutions: Boston Home for Aged Men and for Aged Women, $1,000 each; House of the Good Samaritan, $1,000; Carney Hospital, $1,000; Massachusetts Homeopathic Hospital, $1,000; Boston Children's Hospital, $500; New England Hospital for Women and Children, $500; Massachusetts General Hospital, $10,000.

By the will of the late Mrs. Ednah D. Cheney, $50,000 is left to charity. Of this the Massachusetts General Hospital receives $5,500; New England Hospital for Women and Children, $8,000 for the use of the Training School for Nurses and $8,000 for other purposes, in addition to certain books and pamphlets.

NEW YORK.

SPURIOUS ARISTOL. — A dispatch from Chicago having mentioned that in recent efforts made in that city to stop the sale of bogus drugs the fact was revealed that President McKinley's death was in part due to the use of a spurious aristol, Dr. Roswell Park, of Buffalo, one of the surgeons in attendance, has stamped the story as absolutely false. He authorizes the statement that he can positively assert of his own knowledge that the aristol which was employed in the treatment of the President's wounds was genuine, and not an imitation or spurious product. While aristol is expensive, he believes that it would be almost as costly to produce an imitation of the drug which would deceive an experienced physician as it would be to make the real article.

ANTI-TETANUS SERUM. — A cure of tetanus from the use of anti-tetanic serum is reported from the Newark (N. J.) City Hospital, where the patient, a lad of thirteen, had been under treatment since Oct. 19. The case is regarded as especially satisfactory from the fact that he was in the last stages of the disease when the serum was first employed. It is stated that the total cost of the serum used was more than $200, but the manner in which the injections were made is not given.

CONSTITUTIONALITY OF TENEMENT HOUSE LAW. — The Court of Appeals has sustained the constitutionality of section 100 of the tenement-house law, a decision which is of great importance both to the successful execution of an important phase of the department's work and to the moral and physical welfare of the city's tenement population. The case was a test one brought by the tenement-house department against Kate Moeschein, the purpose being to secure a decision as to the constitutionality of the provision requiring the removal of existing school sinks, one of the worst features of the tenement-house before the enactment of the present law. The main grounds of objection taken by the defense were that the school sink, having been erected in accordance

with previously existing law, constituted property which could not be removed by subsequent legislation without compensation to the owner, and that such removal necessitated "unreasonable and unwarranted expense." The constitutionality of the act has now been sustained by some eighteen judges, having received the unanimous support of all the courts in which it has been tested.

Free Public Bath. — The second free public bath built by the city was formally opened on Nov. 22. It is situated on West 45th street and is a low building of white stone with separate departments for the two sexes. There are in all 101 shower baths: 72 for men and boys, and 29 for women and girls. There are also ten porcelain bath tubs for the use of invalids and the aged. The floors are of concrete and the walls of the dressing and bath rooms are constructed of marble. The doors between the dressing and bath rooms are of sheet iron, and wood is introduced only for the doors from the dressing rooms to the corridors and for the seats in the two waiting rooms.

Food Adulteration. — In the course of an address, made by Dr. Wiley before the students of the College of the City of New York, he said: "The adulteration of food and drugs in this country has done more to sap the moral life of this country than the rum trade ever thought of doing. . . . I make this appeal in relation to adulteration, an appeal for honesty, for, after all, is not honesty the basis of our national integrity and honor?" Stating that as the champion of the poor over-worked stomachs of mankind he stood as an advocate of lighter work, less hours and more pay for the stomach, he referred to a number of instances in which injurious chemicals were employed. Among these was the coloring of certain imported peas by means of sulphate of copper. French white wines, he said, often contained sufficient sulphurous acid to seriously affect the digestion, sulphur being burned in the casks to make the color of the wine lighter and to act as a preservative. Among the strange stuffs which had recently come to his attention was a cargo of broken eggs from China. According to the Government experts, these eggs, gathered in China, are broken and mixed with five or six pounds of boric acid to the hundred pounds of liquid eggs before being shipped to this country, where they are in considerable demand and are often used by prominent confectioners in making fancy cakes.

Obituary.

HENRY MUNSON LYMAN, M.D.

The death of Dr. Henry Munson Lyman occurred Nov. 21 in Evanston, Ill., at the age of sixty-eight. He had been in ill health for a period of about four years, and the immediate cause of his death was angina pectoris. For many years he was a professor in the Rush Medical College in the chairs of chemistry, diseases of the nervous system, physiology and the nervous system, and from the year 1889 professor and professor emeritus of the theory and practice of medicine. Dr. Lyman was born in the Hawaiian Islands in 1835 and graduated at the head of his class from Williams College in 1858. He began the study of medicine at the Harvard Medical School, but was finally graduated from the College of Physicians and Surgeons in 1861, again leading his class. His further medical training was in Bellevue Hospital and acting assistant surgeon in the army in 1862 and 1863. He then established himself in Chicago, devoting particular attention to the nervous system. In addition to his various positions at Rush Medical College, he also for a time was professor of medicine in the Northwestern University Woman's Medical School. He was at various times connected with the Cook County Hospital in Chicago, the Presbyterian and St. Joseph's Hospital. Among other societies, he was a member of the Association of American Physicians and of the American Neurological Association, and of both he served as president. He was a man of large practice, wide influence, and stood for the best in medicine.

Miscellany.

STUDY OF THE HISTORY OF MEDICINE.

Apropos of the editorial in this Journal, Nov. 24, on the importance of the study of the history of medicine, our attention has been called to an editorial in the *Western Medical Review* on the same subject in its issue of April 15 last, from which we make the following extracts:

"No more profitable line of study nor any more interesting can be adopted by the physician in active practice than to take up the general study of the history of medicine. This work can be done either by looking up all those individuals who have contributed to medical knowledge or by becoming familiar with the development of medicine simply as a branch in the progress of knowledge in general. Along either line it will be found both fascinating and instructive. That the importance of this branch of study is being recognized more and more in educational circles is shown by the addition here and there of history of medicine as a separate course in our medical colleges. At least as many as five or six of the important schools make this course an integral part of the curriculum, and it is a fairly certain prediction that a few years will see such a course being given in all the important medical colleges in this country."

" It has been the writer's privilege for nearly two years to lecture regularly on the history of medicine in the Medical Department of the University of Nebraska. The interest taken by the students and by others who have occasionally attended the lectures has been exceedingly gratifying and the reference work done and the notes taken by these same stduents have been of a grade to justify the greatest satisfaction. It is difficult to add to the sum of total professional knowledge or to contribute in a marked degree to the progress of the medical profession unless one is already aware of the status of medicine in his own time. Dr. Benjamin Rush himself says ' that the physician has lived to little purpose who does not leave his profession in a more improved state than he found it.' "

We learn that in the University of Nebraska this is the third year in which a full course of thirty lectures has been given on the History and Literature of Medicine, and that in no course is there better attendance nor more interest shown than in this course. The lectures are given to the members of the freshman class, and interest in the medical library and library methods is stimulated by having all notes taken on index cards and a complete set submitted by each student in competition at the close of the year.

ROUTES AND RATES TO THE FOURTH PAN-AMERICAN MEDICAL CONGRESS IN PANAMA, AND THE PUBLIC HEALTH ASSOCIATION MEETING IN HAVANA.

(COMBINED TRIP.)

THE routes to the Fourth Pan-American Medical Congress are gradually narrowing down as more advantageous rates are being offered. Those who go only to the Pan-American Medical Congress will probably go and return by the way of New York or New Orleans. From the former starting point one hundred dollars ($100.00) will be charged for the round trip; from the latter point fifty dollars ($50.00).

By far the greater number, however, will make the round trip to both of these meetings, returning to Baltimore *via* Jamaica on the steamer which the Commission is arranging to charter.

The Di Giorgio S. S. Line of Baltimore, Md., offers a special ship for exclusive use of party, including meals and berth at sea and in ports, to Panama, Havana and return, attending both meetings and visiting Kingston and Port Antonio, Jamaica, for one hundred and thirty dollars, ($130.00) providing fifty persons take passage.

The " Athos " will leave Baltimore Dec. 27, 11 A.M., arriving in Panama Jan. 2. Leave Panama Jan. 7, A.M., arrive in Havana, Jan. 9, A.M. Leave Havana for Jamaica Jan. 14, A.M., arrive in Baltimore, Jan.18. The " Athos " is said to be one of the staunchest of steel ships, with electric lights, running water, and all modern equipments in the way of toilet conveniences. She has a fine deck surface and a number of deck staterooms, and is guaranteed to be in first-class condition. The president of the steamship company will be one of the party on the trip.

The members of the party can live on board when in ports if they desire, thus saving hotel expenses. Lunch and dinner will probably be served on deck when in smooth water. Physicians can bring members of their families and friends at the same rates. All arrangements must be closed ten days before sailing date.

Number of passengers limited to seventy, fifty must be guaranteed.

Application for reservation of staterooms, berths, etc., to be addressed to Ralph F. Nolley, 103 Park Avenue, Baltimore, Md., or to H. L. Johnson, Chairman Transportation Committee, Washington, D. C., enclosing check.

THE USE OF MECHANICAL APPARATUS IN SURGICAL TREATMENT.

AT a meeting of the Chelsea Clinical Society, London, held on Nov. 15, Dr. Vincent Dickinson in the chair, Mr. Noble Smith read a paper on the above subject and exhibited patients.

He divided the cases requiring mechanical apparatus into two classes, the inflammatory and the non-inflammatory; tuberculous disease of joints being typical of the former class and deformity arising from various paralyses and weakness being instances of the latter class. In the inflammatory conditions, as every surgeon was aware, absolute rest of the affected parts was imperative; in the other class, the surgeon's object should be to correct the deformity without interfering with the natural movements. This was a completely different system from that pursued by mechanicians who were not surgeons, and it required the knowledge of physiology as well as of mechanics to cope with the peculiarities to be dealt with. Mr. Noble Smith then proceeded to demonstrate the methods of treatment by apparatus as applied to caries of the spine and to lateral curvature. The principles of the apparatus in both kinds of cases involved (1) expansion of the thorax without any pressure upon its anterior or lateral parts, (2) continuation downwards of the instrument to the seat in sitting, and (3) possibility of modification of the machine by the surgeon. The principles of *application*, however, differed widely in the two kinds of cases. In the inflammatory cases — caries — the body of the patient was kept close to the apparatus previously adjusted to the proper position, whereas in non-inflammatory — scoliosis — the apparatus was so arranged that it favored movement, and only came into action when the patient for any reason inclined towards a bad position. Thus as regards scoliosis a principle was introduced totally different from that appertaining to any spinal instrument devised by a non-medical mechanician. This same principle could be similarly applied in the treatment of all deformities requiring apparatus, and in which no inflammatory disease existed.

INCREASED WATER SUPPLY.

AT a meeting of the New York Board of Estimate and Apportionment held Dec. 3, it was unanimously resolved to submit a report presented by the Department of Water, Gas and Electricity, embodying a plan for the increase of the water supply of New York City, to the members of the commission of experts appointed by Mayor Low to investigate and report upon the best and most practicable sources of supply. In moving this action Mayor McClellan said that the report dealt with a question of first importance and vast magnitude, and one concerning which the opinions of himself and his official associates would scarcely be accepted by the public as satisfactory evidence of the plan offered; consequently, any action taken by them, however good their intentions, would subject them to merited criticism unless such action were supported by the advice of the best professional advice which could be obtained. It will be remembered that the Low Commission consisted of Prof. William N. Burr of Columbia University and Messrs. Freeman and Herring, all of them experts of the highest reputation, whose character and disinterestedness are beyond question. Their intimate knowledge of the whole subject, from the work already done by them, renders the determination to consult their views peculiarly appropriate, and as they undoubtedly enjoy the public confidence, their approval of the plans of the water supply department would insure their acceptance with unquestioned faith, while their condemnation of them for any reason would render the adoption of such plans impossible in the present composition of the Board of Estimate and Apportionment.

Correspondence.

LICENSES TO PRACTISE MEDICINE IN NEW HAMPSHIRE.

OFFICE OF
REGENT OF THE STATE BOARDS OF MEDICAL EXAMINERS,

Dec. 1, 1904.

MR. EDITOR: The next examination for licenses to practice medicine in the State of New Hampshire will be held at the State House, Concord, on Wednesday and Thursday, Dec. 28 and 29, beginning at 8 o'clock A.M.

All unlicensed physicians who were not in practice in this state on and before March 16, 1897, must pass the examinations in order to receive a license to practice legally their profession. Fee, $10.

Subjects for examination: Chemistry, surgery, physiology and hygiene, anatomy, obstetrics, pathology and diagnosis, therapeutics.

No licenses issued by states, or diplomas from medical colleges, are endorsed by the regent in place of examination, with one exception, graduates from Dartmouth Medical School may receive a certificate on presentation of diploma, *if said diploma shall have been issued between the enactment of the Medical Law, March, 1897, and Jan. 1, 1903.*

Application blanks furnished and all information regarding the examination cheerfully given by the Department of Public Instruction, State Library, Concord.

HENRY C. MORRISON,
Regent.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 26, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Diarrheal Diseases.
New York . .	3,908,644	1,328	344	21.38	20.55	3.01	.90	2.03
Chicago . . .	3,021,086	425	97	23.76	13.88	2.11	1.88	5.40
Philadelphia	1,407,968	417	91	21.12	12.81	2.40	1.68	1.92
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	166	37	18.07	12.65	1.81	.60	—
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	409,645	—	—	—	—	—	—	—
Pittsburg . .	363,403	—	—	—	—	—	—	—
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	335,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744	54	11	24.07	9.26	3.70	—	3.70
Boston . . .	617,950	212	51	20.28	24.53	1.41	3.30	1.41
Worcester . .	126,925	53	13	11.32	15.09	—	1.88	3.77
Fall River . .	119,349	25	12	20.00	20.00	—	—	16.00
Lowell . . .	104,402	41	15	12.19	7.14	2.44	—	—
Cambridge .	100,998	23	6	30.43	26.09	—	—	—
Lynn	73,875	22	3	9.09	4.54	—	—	—
Lawrence . .	73,348	11	4	9.09	27.27	—	—	9.09
Springfield .	72,020	—	—	—	—	—	—	—
Somerville .	70,413	19	5	5.26	15.79	—	—	5.26
New Bedford	68,868	17	4	17.65	29.41	—	—	—
Holyoke . . .	50,538	14	3	7.14	28.57	—	—	—
Brockton . .	46,801	5	2	20.00	—	—	—	—
Newton . . .	39,310	15	4	6.67	26.67	—	—	—
Haverhill . .	39,061	11	3	9.09	27.27	—	—	—
Malden . . .	37,205	8	4	12.50	25.00	—	—	—
Salem	37,188	17	3	11.76	17.65	5.88	5.88	—
Chelsea . . .	36,499	20	6	25.00	15.00	—	15.00	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	8	—	—	25.00	—	—	—
Everett . . .	30,209	7	2	14.30	—	—	—	—
North Adams	29,201	6	1	—	—	—	—	—
Quincy . . .	26,798	5	2	—	—	—	—	—
Gloucester .	26,121	8	3	12.50	—	12.50	—	—
Waltham . .	25,797	9	1	11.11	11.11	11.11	—	—
Brookline . .	25,576	5	—	—	20.00	—	—	—
Pittsfield . .	22,870	6	—	—	16.67	—	—	—
Medford . . .	21,956	5	2	—	—	—	—	—
Chicopee . .	21,692	5	3	—	—	—	—	—
Northampton	20,314	8	0	12.50	—	—	—	—
Beverly . . .	15,807	4	—	50.00	—	25.00	25.00	—
Leominster .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	1	—	—	—	—	—	—
Adams . . .	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,500	3	0	—	—	—	—	—
Newburyport	14,478	2	1	50.00	—	50.00	—	—
Woburn . . .	14,315	1	0	—	—	—	—	—
Melrose . . .	13,819	0	—	—	—	—	—	—
Westfield . .	13,809	2	—	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	2	2	50.00	—	—	—	—
Revere . . .	13,609	3	1	33.33	33.33	—	33.33	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,324	3	—	—	—	—	—	—
Southbridge .	11,716	2	2	100.00	—	50.00	—	—
Watertown .	11,575	1	—	—	—	—	—	—
Weymouth .	11,350	1	0	—	100.00	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,000; under five years of age, 738; principal infectious diseases (small pox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 612; acute lung diseases 531, consumption 350, scarlet fever 15, whooping cough 5, cerebrospinal meningitis 18, small pox 1, erysipelas 7, puerperal fever 12, measles 13, typhoid fever 42, diarrheal diseases 71, diphtheria and croup 74.

From whooping cough, New York 1, Chicago 2, Boston 2. From measles, New York 9, Chicago 2, Boston 1. From scarlet fever, New York 9, Chicago 2, Philadelphia 2, Baltimore 1, Boston 1. From cerebrospinal meningitis, New York 14, Baltimore 1, Worcester 1, Brockton 1, Marlboro 1. From erysipelas, New York 3, Chicago 1, Philadelphia 2, Providence 1. From small pox, Philadelphia 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Nov. 12, the death-rate was 15.7. Deaths reported 4,606; acute diseases of the respiratory organs (London) 171, whooping cough 27, diphtheria 59, measles 127, small pox 1, scarlet fever 34.

The death-rate ranged from 5.0 in Burton-on-Trent to 25.7 in South Shields; London 15.2, West Ham 14.8, Brighton 11.1, Southampton 15.3, Plymouth 16.5, Bristol 15.0, Birmingham 17.0, Leicester 12.3, Nottingham 12.4, Birkenhead 17.7, Liverpool 20.9, Wigan 22.4, Bolton 14.5, Manchester 16.3, Salford 15.7, Halifax 24.2, Bradford 15.4, Leeds 17.3, Sheffield 13.7, Hull 23.2, Newcastle-on-Tyne 17.8, Cardiff 12.1, Rhondda 15.8, Hornsey 8.3.

METEOROLOGICAL RECORD.

For the week ending November 26, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 20	29.86	50	60	40	55	61	58	S W	S W	6	12	C.	O.	0
M. 21	29.82	44	52	36	72	68	70	W	N W	12	12	F.	O.	.03
T.. 22	29.98	40	49	31	66	63	65	W	S W	8	9	C.	O.	0
W. 23	29.92	46	52	40	71	73	72	W	S E	10	9	C.	O.	0
T.. 24	29.56	39	42	36	89	79	84	N	N W	14	12	O.	C.	.03
F.. 25	29.62	36	40	32	64	72	68	N W	W	20	15	F.	C.	0
S.. 26	30.01	32	37	26	60	51	56	W	W	16	9	C.	C.	0
☞	29.82		47	34			68							.06

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING DECEMBER 3, 1904.

J. H. IDEN, passed assistant surgeon. Detached from the Naval Hospital, Philadelphia, Pa., and ordered to the Naval Hospital, Newport, R. I.

H. A. DUNN, assistant surgeon. Detached from the Naval Hospital, Newport, R. I., and ordered to the Naval Hospital, New York, N. Y.

A. R. ALFRED, surgeon. Detached from the Navy Yard, Puget Sound, Wash., Dec. 9, and ordered to the Naval Station, Cavite, P. I., reporting on the "Solace," Dec. 14, for duty *en route*.

D. N. CARPENTER, surgeon. Detached from the Naval Hospital, New York, N. Y., and ordered to duty in charge of the Naval Hospital, and to additional duty at the Navy Yard, Puget Sound, Wash.

F. L. BENTON, passed assistant surgeon. Detached from the Naval Station, Cavite, P. I., and ordered home to wait orders.

J. D. MANCHESTER, assistant surgeon. Detached from the "Columbia," and ordered to the "Marblehead."

A. M. FAUNTLEROY, passed assistant surgeon. Detached from the "Lancaster," and ordered to the Navy Yard, Norfolk, Va., Dec. 6, and thence to accompany a draft of men to the Navy Yard, Mare Island, Cal., thence to the "Philadelphia," with additional duty at the Navy Yard, Puget Sound, Wash.

JACOB STEPP, assistant surgeon. Orders of Nov. 5 modified. Detached from Navy Yard, Boston, Mass., and ordered home to wait orders.

H. DEVALIN, acting assistant surgeon. Ordered to the Naval Proving Grounds, Indian Head, Md.

W. H. BUCHER, surgeon. Detached from Naval Station, Olongapo, P. I., and ordered to the "Cincinnati."

L. L. VON WEDEKIND, surgeon. Detached from the "Cincinnati," and ordered home.

SOCIETY NOTICES.

NEW ENGLAND HOSPITAL MEDICAL SOCIETY. — A regular meeting of the Society will be held at Hotel Nottingham, Boston, Mass., on Thursday, Dec. 15, 1904, at 7.30 P.M. The meeting will be in charge of the Section on Gynecological Surgery, Dr. Clara J. Alexander, Chairman. Papers: Anatomy of the Pelvis, by Dr. M. Ethel Fraser. Surgical Pathology of the Pelvis, by Dr. Mabel Austin. History of Gynecological Surgery, by Dr. Alice W. Tallant.

DR. AGNES C. VIETOR, *Secretary*.

THE SAMUEL D. GROSS PRIZE OF TWELVE HUNDRED DOLLARS. — This prize will be awarded on Jan. 1, 1905. The conditions annexed by the testator are that the prize "Shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo in length, illustrative of some subject in Surgical Pathology or Surgical Practice, founded upon original investigations, the candidates for the prize to be American citizens." It is expressly stipulated that the competitor who receives the prize shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery, and that on the titlepage it shall be stated that to the essay was awarded the Samuel D. Gross Prize of the Philadelphia Academy of Surgery. The essays, which must be written by a single author in the English language, should be sent to the Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 219 S. 13th St., Philadelphia, on or before Jan. 1, 1905. Each essay must be distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay. The Committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year. The Committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

JOHN B. ROBERTS, M.D.,
WILLIAM L. RODMAN, M.D.,
WILLIAM J. TAYLOR, M.D.,
Trustees.

RECENT DEATHS.

DR. WILLIAM F. CUSHMAN, a member of a prominent old New York family, and formerly a well-known physician in that city, died at his country residence in Ridgefield, Conn., on Dec. 2, from cerebral apoplexy. He was sixty-five years of age, and was graduated from the College of Physicians and Surgeons, New York, in 1863. For a considerable time he was treasurer of the New York Academy of Medicine. A number of years ago he retired from active practice on account of ill-health.

DR. LEONARD F. PITKIN, who was surgeon to the Interborough Railway Company, died on Dec. 1, at St. Luke's Hospital, New York. He was born in Hartford, Conn., in 1858, and was graduated from the medical department of the University of the City of New York in 1879. He had always practiced in New York, but last spring was compelled to give up work on account of illness.

DR. WILLIAM EDWARD CARROLL, a well-known practitioner of Newark, N. J., died on Dec. 2, from pneumonia, at St. Michael's Hospital in that city, where he was one of the attending physicians. He was born in Newark in 1857, and was graduated from the College of Physicians and Surgeons, New York, in 1884. He then spent two years in travel and study in Europe. He was for some time assistant to Professor William N. Porter at the New York Post-Graduate Medical School and Hospital.

BOOKS AND PAMPHLETS RECEIVED.

A Case of Over-Correction of Convergent Squint without Operation. By Samuel Theobald, M.D. Reprint.

Are Tenotomies for Hyperphoria Necessarily more Uncertain in their Results than those for Esophoria and Exophoria? By Samuel Theobald, M.D. Reprint.

Twenty-seventh Annual Report of the Board of Health of the State of New Jersey and Report of the Bureau of Vital Statistics. 1903.

The Physician as a Carrier of the Contagion of Scarlet Fever. A Collective Investigation by John E. Loveland, M.D. Reprint.

An Unusual Case of Fungating Bromide of Potassium Eruption. By A. F. Büchler, M.D. Reprint.

The Illinois State Board of Health. Report of the Sanitary Investigations of the Illinois River and its Tributaries, with special reference to the effect of the sewage of Chicago on the Des Plaines and Illinois Rivers prior to and after the opening of the Chicago Drainage Canal. Springfield, Ill. 1901.

Illinois State Board of Health. Report of Sanitary Investigations of the Illinois, Mississippi and Missouri Rivers with relation to the effect of the Sewage of the City of Chicago and the sanitary conditions of the water supplies of the Cities of Chicago and St. Louis.

Normal Histology. By Edward K. Dunham, Ph.B., M.D. Third Edition, Revised and Enlarged. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1904.

A System of Practical Surgery. By Prof. E. von Bergmann, M.D., Prof. P. von Bruns, M.D., and Prof. J. von Mikulicz, M.D. Vol. iv. Translated and edited by William T. Bull, M.D., and others. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1904.

An Index of Symptoms as a Clew to Diagnosis. By Ralph Winnington Leftwich, M.D. Third Edition. New York: William Wood & Co. 1904.

A Short Treatise on Anti-Typhoid Inoculation Containing an Exposition of the Principles of the Method and a Summary of the Results achieved by its Application. By A. E. Wright, M.D. (Univ. of Dublin). Illustrated. Westminster: Archibald Constable & Co., Ltd. Chicago: W. T. Keener & Co. 1904.

Address.

THE VALUE OF THE PHYSIOLOGICAL PRINCIPLE IN THE STUDY OF NEUROLOGY.*

BY JAMES JACKSON PUTNAM, M.D., BOSTON,
Professor of Diseases of the Nervous System, Harvard University.

THE subject of this address will be considered under three heads: First, the limitation in usefulness of those methods of medical investigation which are based on the assumption that disease is always a localized process; second, the importance of the part played in disease by readjustment and adaptation on the part of the organism, and the need of cultivating physiological conceptions as a means toward a proper understanding of these processes; third, the impropriety of attempting to draw fundamental distinctions between "functional" and "organic" disorders, and the significance of the hypothesis of "energies" as applied to living organisms and to disease.

When the late Professor Virchow was chosen to deliver the opening address before the International Congress at Rome, in 1894, he selected for his topic "The anatomical principle in the study of disease" ("*Morgagni und der Anatomische Gedanke*"),[1] a doctrine to the maintenance of which a great portion of his own long and splendid labors had been devoted. The anatomical principle was not conceived by Virchow in any narrow spirit. Its tenets were that disease is always a localized process, and ought to be susceptible of expression in some sort of anatomical terms, but he asserted that the search for this process might be made as properly through the clinical examination of the patient by the trained physician, together with a careful study of his history, as through the scalpel and microscope of the anatomist. He admitted that the time was still far distant when we should be able to discover the whole of the anatomical evidence, and urged that the inquiry should be extended from the organs to the tissues, and from the tissues to the cells, and even to the very "vital functions" themselves. But he insisted, nevertheless, that in some sense — a sense not as yet strictly defined or definable — every disease was to be thought of as occupying circumscribed areas, in the midst of tissues for the most part or in great part sound. "*Ubi est morbus?*" — "Where is the diseased spot to be found?" — was proclaimed as the watchword of the investigator, while at the same time the students of therapeutics were congratulated on having found means, as a result of anatomical discoveries, to carry local treatment to portions of the body hitherto regarded as out of reach.

It is needless to attempt a recital of the successes which have been won under this banner of anatomical research. The principle which the great master Virchow proclaimed was one that had appealed and still appeals alike to the faithful plodder and to the man of genius; its history is the best part of the history of medicine during the past half century; it has been the best thread of guidance since the history of medicine began.

The value of the anatomical principle has been quite as evident for the department of neural pathology as for any other, and the devotion to its maintenance quite as strongly marked. At the meetings of neurological societies the pathological anatomists have always been more certain of an attentive hearing than investigators of any other sort; in the direction of their work has seemed to lie the sure and trusted path of progress toward a better understanding and a better treatment of disease.

And yet, in spite of all that has been accomplished, there are abundant reasons for the opinion that the very successes of the anatomical principle have thrown unduly into the shade the claims of another mode of approaching the problem of disease, without the aid of which anatomical research must prove inadequate to the task which has been imposed upon it. For this latter principle, which emphasizes the importance of recognizing, in disease, the signs of more or less widespread modifications of function of the organism as a whole, the designation of "physiological principle" is appropriate.[2]

The argument is not that the anatomical principle is faulty because it has failed to accomplish all that had been hoped of it as regards the discovery of the essential nature of disease, but that, under it, certain local aspects of the disease-process are made the exclusive subjects of research, and that the mind is thus turned aside from a recognition of the fact that an equally important object of study is the modification of functional activity, local or general, which marks the efforts of readjustment on the part of the organism to the effects of the primary disturbance. Such a study as this cannot be adequately made without a thorough use of physiological methods, or of clinical methods inspired and guided by physiological conceptions, the term physiological being understood as including all means of research which throw light upon the mechanism of the processes of life. Psychological and chemical investigations belong preeminently in this category. The faintheartedness which most of us have felt in searching for an anatomical explanation of the great neuroses and psychoses has not been simply a quailing at difficulties which were theoretically surmountable, but has been due in part to a justifiable suspicion that we were not altogether on the right track. We have striven to ticket each one of the histories in our case-books with an anatomical designation indicative of some localized pathological process, but we have realized when we did so that our designations usually fell far short of expressing the whole state of the sick

* Read before the Neurological Section of the International Congress at St. Louis, Sept. 22, 1904.

[1] Berl. Kl. Woch., 1894.

[2] There has been a growing tendency to recognize the importance of this standpoint, and very recently Professor Wolkow of St. Petersburg has devoted an able and thoughtful essay to a series of considerations analogous to those here offered. (Die Physiologische Anschauung in der Klinischen Medicin, Berliner kl. W. Schr. 1904. Nos. 15 and 16.)

man whom we had before us when the history was made.

The widespread feeling that no investigation of symptoms, however thorough, could give us the sort of insight which we needed has led us to underestimate the real value of such inquiries. If the study of symptoms does not carry us to the heart of the disease, neither does the anatomical study of the disease carry us to the heart of the symptoms. In fact, a thorough inventory of symptoms, that is, an inventory of the signs of disordered functions of the body as a whole, can often tell us more of what we wish to know than an inventory of anatomical signs of altered structure. No anatomical research can pierce to the secret of broken coördinations, and yet it is in these that a great part of disease begins, or comes eventually to consist. No anatomical research can help us to estimate the margin of resistance against strain, and yet in the estimation of this margin, for each individual patient, issues depend which are of scientific and practical importance. One man's health is very different in quality and quantity from another man's health, though the two men, untested, may appear alike, and the investigation into their respective powers of effectiveness and of resistance is often a valuable part of the study of their diseases.[3]

We need, in short, to supplement our researches into the direct and local effects of a given lesion by a study into the more or less widespread modifications of energy which the organism exhibits as a result of the lesion, and which it is customary to designate as indicative of an attempt[4] to repair the damages which the lesion has induced. We need, also, to learn a great deal more about the genesis of symptoms, even though we must remain ignorant about the genesis of what one would call disease, in an anatomical sense.

The signs of readjustment constitute, in fact, all that we can really learn in the study of disease, for the disease-process, considered as independent of them, is an abstraction, without real existence.

And if this is so, then all the indications of this process of readjustment are proper objects of our study, whether they be of the nature of symptoms or of anatomical marks, whether they concern special localities and organs which are the seat of primary "lesions," or other parts standing in functional relationship to them, and even though they point to changes which are not to be classed as morbid, but rather as modifications favorable to health. The reactions after a so-called "healthy" fatigue, which often lead to new and better powers of endurance, would be of this latter sort, and the same is true of those reactions through which immunity is secured after infectious disease. At such points as these, "disease" and "health" touch hands, and it becomes, indeed, evident that neither disease nor health is a definite condition, but that both of them are movements towards some relatively endurable equilibrium,[5] a goal which is never fully reached.

Of course, to a certain extent, investigations of this sort are daily made by every student, but the question is, In what direction is it now most important that the *emphasis* of research should be thrown and scientific instincts developed? Imitation and fashion play a large part, even in scientific investigation, and the almost universal tendency to bend all energies to the search for the physical evidence of localized lesions has led too often to a disregard of disturbances usually classified as functional. Not only is it essential that "clinical medicine" should be studied in the light of "physiology," but the field of morbid psychology, which now lies untilled save by a few students, is one of the utmost practical importance for each practitioner.

We can hardly treat a patient, no matter with what he may be suffering, without having to reckon on the vast and complex part which his mental attitude will play in controlling the result. In many instances, indeed, the physician's success depends upon the skill with which he makes this estimate. Yet how rarely is it systematically and consciously made, under the guidance of any definite principle, and how gladly would most physicians crowd out of sight the necessity for making it at all. A man meets with an injury attended with great nervous shock, and the neurologist is ready enough to spend infinite pains on the study of the necrotic areas in his spinal cord, but is apt to overlook the fact that this localized process does not explain why he has at the same time lost flesh and strength and color, and has become the football of his delusions and his fears. The data gathered by psychologists and physiologists, and the principles based thereon, count for but little in most assemblages of neurologists. The reason usually given for this disregard of psychological and physiological data is the insufficiency of our means for the verification and interpretation of them. But this fear should not hold us back from making the attempt to utilize these facts, for the same uncertainties attend anatomical research the moment we endeavor to use it for probing the essential problems of disease and life. The confusion attending the recent discussions over the neuron theory and the real seat of neural energy both justify and illustrate this statement.

This attitude towards the problem of disease, which claims pathology as a special department of physiology, is essentially the attitude of Wolkow, to whose stimulating essay I have alluded already, and it is also the attitude of Dr. Hughlings Jackson of London, whose brilliant studies, stretching back for nearly half a century, mark him as foremost among the advocates of the

[3] Physiologists recognize that organs, such as the heart (*cf.* the address by Welch, cited below), are able, under special stimulation, to work with more than usual effectiveness. This extra force is called the "physiological reserve."

[4] The word "attempt" and others of like meaning are here used not in a teleological, but only in a descriptive sense, for it seems plain that we must follow the example of the biologists who have studied the problems of growth and of repair (compare Thomas Hunt Morgan, "Regeneration,") and admit that there is no justification for assuming a special *vis medicatrix naturæ*.

[5] "Stationary Equilibrium." (Ostwald, Die Philosophie der Natur.)

physiological method in neurological research. Professor Welch [6] of Johns Hopkins University has recently made substantially the same claim in his address upon "Adaptation in Pathological Processes," drawing his illustrations from the department of general pathology. Verworn [7] takes the same position when he speaks of diseases as stimuli (*Reize*) which alter the conditions under which life is carried on, thereby adopting Virchow's designation, "*Die Krankheit ist das Leben unter veranderten Zustanden.*"

The physical changes which the organism undergoes in this process of adaptation may be few and slight, and mainly local, or they may be so broad and numerous as wholly to overshadow the lesions by which they were set in motion. In illustration of this overshadowing of the direct effects of a lesion by the processes of readjustment, I will mention three instances of widely different sorts, yet similar, as I think, in principle. These are: first, myxedema; next, the vast changes that sweep through the organism at the great climacteric epochs of adolescence and the menopause; and, finally, those kindred processes of metamorphosis by which, through castration, the bull is converted into the ox.

In all these cases we see two tendencies at work, the one suggesting disease, or failure, the other pointing toward the establishment of a new sort of equilibrium, containing well-marked elements of stability and health. Is not the controlling principle in these instances analogous to that under which the neuter bee is converted into the queen bee through a change in nourishment, or that through which some of the lower forms of marine animals are altered in type by gradual removal from salt into fresh water, or by some kindred modification of the chemical constituents of the fluids by which they are surrounded?

The conservative physician is usually disinclined to admit biological principles as applicable to the problem of disease. Yet, in fact, it is just in this direction that our search should tend, and when we see complex disorders, such as Graves' disease, or even certain types of neurasthenia, of unknown primary lesion but with hosts of secondary physical and neural signs, we should remember the processes I have cited, and should hesitate before stamping summarily as "disease" modifications of structure and function which doubtless represent, in part, movements toward a new and relatively stable existence. Who can doubt that we ourselves, regarded from another point of view than our own, are defective and mutilated beings, who have sacrificed much to gain the faculties which we justly regard as so important?

This would be a proper place to mention in detail, at least by way of illustration, some of the more important contributions made by physiologists, psychologists and biologists which have thrown light upon the clinical problems of compensation and adaptation.

I have already referred to the principle of "physiological reserve" force, as utilized by Welch in his important address, and speak of it here again only as possibly helping to explain the numerous instances where the organism shows the power of fostering certain of the functions of the nervous system at the expense of other manifestations of its life. The case of the runner from the field of Marathon, who brought his message to Athens in spite of the gathering dissolution which laid him dead in the market-place at the moment of his arrival, is a striking illustration of a principle which is of frequent application.

Thus, the disarrangements of the nervous system that are liable to follow nervous shock of some severity are sometimes very late in making their appearance, and in the interval the patient may appear as if unaffected by the experience through which he has just passed. The final "breaking-down," due to prolonged strain, is often similarly postponed, only to come on eventually with great suddenness.

The fact is often overlooked that there is an analogous "latent period" in the early stages of toxic affections, when the symptoms are masked by this strong tendency on the part of the organism to continue offering an unchanged front in response to the calls of the environment. Thus a patient who is exposed to lead or alcohol may retain the power to use his weakened nerves and muscles for a long period, until finally, under some slight additional strain, complete disability suddenly makes its appearance.

It is apparently this same intense instinct to present a functionally adequate front to the demands of the environment that enables the hysterical patient whose vision is failing to retain the accuracy of the central field, and guides the brain in the reassertion of its powers after injury. The compensation in many cases is so complete as to leave no trace of the primary loss, although some relatively slight additional lesion may make it clearly evident. This is illustrated by the interesting compensatory relationship between the sensori-motor functions of the cerebral cortex and those of the semicircular canals, discovered a number of years ago by Ewald.

It is as difficult to explain adequately why it is that the organism thus seeks to reassert itself on the old lines, in a physiological sense, as it is to tell why the lower animals are able to make good the loss of important parts and organs, even those of the interior of the body, with regard to which the "habit" of restoration cannot have been acquired through evolution.

Many partial explanations, such as those indicated by Loeb under the name of "tropisms" are indeed of value, but Morgan,[8] after reviewing with great care the evidence at hand for the case of the restoration of lost parts, declares that a satisfactory explanation is there impossible. One important reason for arriving at this conclusion is that it is by no means invariably true that in the process of restoration the interests of the organism as a whole are consulted. In repair, as

[6] Transactions of the Congress of American Physicians and Surgeons, 1897.
[7] Berl. kl. W. schr., 1901, No. 5, and other papers.
[8] Regeneration.

in development, the results are often (from the standpoint of the ordinary observer) monstrous or grotesque. And so, too, in human pathology, the processes of compensation and readjustment seem sometimes to work distinctly toward disease instead of health. Nevertheless, these processes must remain the main subject of our study, and the principles underlying them must be restated more and more broadly, in physiological and philosophical terms, before a unifying conception can be reached.

It is to the clear insight of Hughlings Jackson [9] that we owe some of the most fruitful suggestions as to the mode in which symptoms of disease arise when the normal balance between the various functions of the nervous system has been broken. New light has been thrown on many of the phenomena of which he speaks by the physiologists who have worked on the vast subject of inhibition, and the effects of a disturbance of the interplay between inhibition and excitation. The names of Meltzer,[10] Sherrington, Biedermann, and Wedenski [11] come to mind, especially, in this connection. Nevertheless, the fundamental principles which Hughlings Jackson so long ago expressed retain for the most part their validity. He made it clear that the signs and symptoms met with in disease are of dual origin, that portion of them which is due to a lesion, such as we might expect to demonstrate anatomically being often the less conspicuous part, while the more conspicuous part is due to the vital energy of the uninjured remainder of the nervous system, acting without due control and yet with reference to such coördination as is still in force. Special and reciprocal coordinations of this sort exist between the cerebellum and the cerebrum, so that the special tensions and characteristics of either one is liable to come singly or pre-eminently into play when the activity of the other suffers a check. The disorders thus set up form "complementary inverses" of each other. Similarly, when any portion of the nervous system is damaged, there are signs of defect or "negative symptoms," due to impairment of the more highly coördinated functions of the part concerned and related parts, and signs of over-action, or "positive symptoms," due to uncompensated activity of the functions of "lower levels."

These "positive symptoms" might be classified simply as if due to unchecked liberation of energy, or as attempts at compensation (in a duly qualified sense) on the part of the organism as a whole. Sometimes the phenomena which seem at first glance to bear the stamp of "disease" are really better classifiable as of conservative or compensatory nature, while under other circumstances the reverse may also be the truer statement. Thus Strohmeyer [12] has pointed out how "compulsive ideas" may sometimes have a value for the mental health of the patient, and Hughlings Jackson has suggested an explanation for the fact that motor convulsions, in epilepsy, may, at least, be less injurious for the mental condition of the patient than the seemingly less serious psychic seizures.

We owe also to Hughlings Jackson the generalization that lesions which occur suddenly, and throw out of gear, as they are bound to do, the more delicate of the functions represented in that part of the nervous system which is concerned, are likely to be followed by symptoms of a more violent sort than those which take place slowly. Thus, the epileptic discharge accompanying a lesion so slight as to leave no recognizable anatomical trace behind, is liable, by virtue of its suddenness, to give rise to a maniacal outbreak, which represents the uncontrolled activity of relatively uninjured portions of the brain, while on the other hand, lesions which anatomically may appear infinitely more serious are accompanied by no such outburst. Different forms of epileptic discharge and their secondary results differ widely also among themselves in these respects.

These hypotheses are in need of further analysis and should be tested anew by neurologists trained in physiological methods.

Reasoning on lines similar to those laid down by Hughlings Jackson, Dr. Edward Cowles has recently sought to unify the various members of the large class of the psycho-neuroses of exhaustion, or of lowered mental tension. Thus the different phases of manic-depressive insanity are not due, he thinks, to separate and specific processes for which we might expect to find special chemical or anatomical expressions, one process leading to excitement and another to depression, but these phases, which in fact are often mixed, are phenomena of secondary occurrence, and are explicable on principles analogous to those outlined above as indicating the genesis of epileptic mania.

Some of the principles brought out by Hughlings Jackson are quite in harmony with those insisted upon of late years by a relatively small group of observers, abroad and at home, who have brought psychological investigations to the aid of clinical research. I have especially in mind the fine work done by such men as Janet and Freud in Europe, Morton Prince and Sidis in America, not to speak of many others who have labored in the same field. To them we owe such knowledge as we now possess of the contrast between the dissociation of consciousness so characteristic of hysteria, and of the contrast between this tendency and that which gives rise to the complex and varied mental phenomena of asthenic states, or to the temporary and quasi-normal disturbances of daily life.

It would be impossible even to name, in a few paragraphs, the many clinical researches tending toward a better understanding of mental symptoms, for the prosecution of which a knowledge of psychological and physiological

[9] The first lecture of "Hughlings Jackson Course," delivered in January, 1898, contains a brief outline of the importance of his generalizations. (*Lancet*, Jan. 8, 1898.)

[10] Medical Record, June 7, 1902. "The Role of Inhibition in the Normal and Some of the Pathological Phenomena of Life."

[11] Pflüger's Arch., f. d. ges. Physiol., 1900.

[12] "The Conception of Compulsive Ideas as a Safeguard Neurosis ("Abwehrneurosen"), Cbl. f. Nervenheilkunde u. Psych., vol. 14, 1903.

generalizations is essential. A few illustrations must suffice.

Thus, in every movement leading to exact thought and exact expression, in every movement of the memory, vast numbers of mental processes must coöperate, and if the outcome is to be effective, this coöperation must be governed from the outset by a leading idea as a ruling motive. The failure of this ruling idea leads to the wayward flight of thoughts, so characteristic of various forms of mental weakness, as has been pointed out by Liepmann.[13] The psychological bearing of this principle has repeatedly been insisted on by the keen psychologist, Bergson, both in his work on memory and matter [14] and in a more recent essay.[15]

The psychological researches into *habit* and "*set*" are likewise of practical importance.

The laws of habit describe the tendencies under which the varied reactions of the nervous system recur under forms which are really stereotyped and predetermined, although simulating the purposive reactions of health, and often only with difficulty to be distinguished from them. The term "set" describes the process by which the reactions of every individual, besides their purposive significance, receive a form and coloring which in a measure reflect the general characteristics of the personal life of the actor, his temperament, his racial traditions, his education. It indicates, as has been justly said, the "signature" in the musical sense, under which the movement of his life goes on. The "set" of each patient must be understood before his illnesses can be mastered. In the study of these important laws psychologists and neurologists can lend each other mutual support.

If a further illustration was needed of the way in which a refined study of physiology and psychology can be made of the highest use to supplement anatomical data, in affording a basis for clinical conclusions, it could be amply furnished by a consideration of the problems of *fatigue*, that mysterious region, daily traversed, where health and sickness are so strangely mingled.

Thanks to recent investigations, we know a good deal about the anatomy, chemistry,[16] and physiology [17] of the nervous system in fatigue, as representing the primary lesions, but it needs only a brief reflection to show how numerous and varied are the secondary manifestations, neural and mental, involving eminently the functions of the organism as a whole and in all its parts, that characterize the clinical outcome of acute or of prolonged exhaustion.[18] To give to these manifestations an adequate expression would often mean the passing in survey the functions of all the organs of the body. This is a task which would be anatomically impossible, since even the most extensive anatomical survey would fail to take cognizance of the disarrangements of old coördinations and the establishment of new ones.

Almost equally important with the generalization that the manifestations of disease are largely compensatory or adaptive, *i. e.*, vital or physiological manifestations on the part of the organism, is that which describes these changes as affecting *not organs, but functions*. This view is justly made much of by Wolkow, who points out that too close an adherence to the analytic methods of the anatomist encourages a tendency to regard the body as a congeries of organs, of tissues, and of cells, having an independence of each other which, in reality, they do not possess. A mode of conception such as this robs the organism, regarded as a whole, of its individuality, and as a substitute for it we need to cultivate the habit of regarding each individual as representing a vast system of interlocking functions, partly known to us already, partly unknown. It is during the disturbances and reorganizations of these functions, either in themselves or in their relations to each other, that the symptoms of disease arise, and the problem of the physician is to cast up the patient's account at each critical juncture, and to reckon upon what assets, in a physiological sense, he has yet to reckon, upon what powers of compensation and readjustment he can still rely. In place of regarding the body so much by piece-meal, we need to regard it more as a whole; as a supplement to our study of structure we need a closer study of function. Some diseases, as Wolkow suggests, could best be defined as disorders of unknown functions. It is probable that, under the same principle, those disorders which we now classify as due to premature death of anatomical parts [19] could be more properly described as due to the premature falling out of more or less specialized functions.

In no department of pathology is it so difficult to arrive at satisfactory conclusions by the aid of the anatomical method alone as in the department of neural pathology. For it is the nervous system upon which the organism pre-eminently depends for the very existence and efficiency of these interlocking functions which are the basis of life. We can get on without admitting the existence of matter, in the familiar sense of that word, but we cannot get on without admitting the existence of *energies*,[20] superposed one over another in ever increasing complexity of organization, and to admit this conception of energies is at once to throw the emphasis of research upon the study of functions, and to admit the significance of the anatomical method only as a valued help toward the better understanding of function.

One unfortunate result of a too close adherence to the anatomical method is that it has introduced into medical literature, and, more important

[13] Ueber Ideenflucht; publ. by Carl Marhold, Halle, 1904.
[14] Matière et mémoire.
[15] L'effort intellectuel. Rev. philosophique, 1902, p. 53.
[16] See especially various papers by Verworn and his pupils, which are published or referred to in the recent volumes of the Z. schrift f. Allgem. Physiologie, 1901 to 1904.
[17] See especially Richet, Dictionaire de Physiologie, article "Fatigue."
[18] See "Neurasthenia" by Cowles, Shattuck Lecture, 1891. Boston Med. and Surg. Journ.; see, also, the various accounts of the Exhaustion Psychoses, and of studies on the contests in the Olympian games.
[19] Termed by Gowers "abiotrophy."
[20] Of course, in the final analysis, it must be admitted that any given conception of "energies" can be taken only in a symbolic sense. It is, however, at present, the term most conducive to clear thought and adequate generalization.

still, into medical thought, a differentiation of diseases into two contrasted, although vaguely defined, categories designated as "functional" and "organic," two terms which are objectionable because they help to perpetuate false notions of physiological, pathological and clinical sorts.[21]

However useful these terms may have seemed as affording a convenient, if rough, classification of diseases, and however inspiring it is to reflect that with the idea of "functional" goes that of possible curability, it is nevertheless true that their employment has had a mischievous because a misleading effect, and that it turns away the mind from the true recognition of a nature of the facts at stake.

Contrast, for example, the cases of hysteria and epilepsy, with regard to which these terms are often used, as if with an essential meaning. If in calling hysteria "functional" and epilepsy "organic" it is meant that the one is curable and the other incurable, neither assumption is strictly accurate. If it is meant that in the case of hysteria there is, presumably, no essential anatomical peculiarity of the brain and nervous system, while in epilepsy such a peculiarity is present, neither assumption is correct. For no one can doubt that the brain of the hysteric is in some degree abnormal, and while we must make the same assumption in the case of epilepsy, we know nothing of the actual change which brings the epileptic fit about or makes it possible, nor can we even say that the fit itself is not a conservative process, in a certain sense. Again, the epileptic paroxysm, as such, is a sign which distinctly deserves the name of "functional," as much when occurring spontaneously as when induced by experimental excitation of the cortex. Furthermore, it would be only partially correct, and certainly not scientific, to call hysteria a "functional" and epilepsy an "organic" disease because epilepsy occurs oftener than hysteria in patients who exhibit certain physical peculiarities which we classify as stigmata of degeneration.

It would be equally erroneous to claim that having classified a disorder as "hysterical," and therefore as "functional," we have the right to consider it as representing a condition which anatomy need not take into account. Mental action is, in every sense, a real force, standing on the same plane with the other forces which we regard as more familiar, and as such it is capable of influencing the nutrition of the body. It is only by evasions and subterfuges that we can deny the reciprocal relationship between bodily processes and mental states. Both of them are manifestations of energy, and there must be some denominator common to them both. Between death from a bullet that traverses the brain and death from an emotional shock, the difference is one, solely of detail. When any disorder such as we should be inclined to call functional is hostile to the fundamental interests of the organism, it leads at once to manifest disorders of the nutrition. Not only is this true of depressive emotions, but even of excessive intellectual preoccupations, as when Dante said, "My great work has made me lean." This datum of common observation is receiving, more and more, the solid endorsement of scientific thought. Thus, Ostwald [22] dwells upon the fact that mental operations of a pleasurable sort directly favor nutrition and the normal flow of chemical energy, while those of a painful sort interfere with nutrition and hinder the flow of chemical energy.

At both these latter points the barrier between the functional and the organic is broken down. As a matter of fact, this barrier does not, by right, exist, and we should not be tempted to use the terms "functional" and "organic" as applied to disease, at all, were it not for two reasons, the first being the convenience of the custom, the second that there are many conditions which we recognize as being on the whole hostile to most of the interests of the organism and which we therefore feel justified in classifying as disease, yet where the disorder is not adapted for anatomical expression. If we adopted, as we should, the conception defended by the clear-minded philosopher and scientist, Ostwald, that the organism is a fabric built up, not of atoms, but of energies, we should never draw these unscientific distinctions between "function" and "structure," or "symptomatology" and "anatomical expression," as standing for fundamentally different and contradictory conceptions, or as affording, the one a truer and the other a less true method of approaching the study of disease, but we should admit that the data gathered under these different headings stand upon the same plane as regards their admissibility as evidence. The data furnished by the study of symptoms, which in the case of the so-called functional disorders constitute all the evidence at our command, are data of a physiological sort, and throw light rather on the reactions of the organisms than on the direct effects of the primary lesion. For this reason they are not susceptible to discovery by anatomical means.

In conclusion, then, I offer the following propositions:

Every organism, whether we call it diseased or well, presents itself to our view as a web of interwoven "energies," which, in order to study them by anatomical means, we must break artificially into fragments that have, in reality, no correspondingly separate existence.

These energies, under tendencies which countless ages of evolution have established, have woven themselves into a mechanism of interlocking functions, forming an endurable and relatively stable equilibrium which we denominate as health. This equilibrium, however, must always remain but relative, and would become a real equilibrium, if that were possible, only at the sacrifice of further evolution and progress.

The processes of mutual modification and adjustment through which such an organism seeks to gain and to maintain this equilibrium, under

[21] Compare in this connection, Obersteiner, Functionelle und Organische Erkrankungen, 1900; and Krehl, Die Functionelle Erkrankungen, in Die Therapie der Gegenwart, 1902.

[22] Philosophie der Natur.

the ordinary conditions which we classify as health, are the only means which it possesses to meet the more serious needs created by the unusual conditions that we call disease.

It rarely happens that these efforts [23] at readjustment (after any considerable disturbance of this equilibrium) are thoroughly successful, and in the abortive or exaggerated reactions on the part of the organisms, energies are set free and habits are established which are often hostile to the main interests of the organism as a whole, and therefore are reckoned as evidences of disease.

In many cases the processes of readjustment are taken part in by various functions of the organism which do not seem to be at first sight related to the changes primarily at stake, to such an extent that the earlier effects of the original lesion are overshadowed, and we seem to be in the presence of what would be called a change of type rather than a disease. In this way, for example, what are called by biologists the "secondary sexual characters" arise. Clinical examples of this tendency toward such a generalization of the process of readjustment have already been suggested.

Although these processes of readjustment do not seem to be guided by teleological influences, and although they often fail to benefit the organism, and, instead, work it great mischief, yet in many instances they do have all the outward appearance of being under the direction of some general principle analogous to that which governs the processes of growth, and is manifested in the repair of lost parts among the simpler forms of life.

This tendency, according to which the processes of repair are governed by a "general principle," presents interesting analogies with the government of the flow of thought and memory by a "leading idea." The same tendency probably finds application, in fact, in the case of all complex reflexes, no matter of what sort.

In order to give aid and guidance to the more favorable elements of these processes of readjustment, we, as physicians, need to bend all our powers to a better understanding of the resources which each organism has at its command for compensation, for continued life on the old lines, or for gaining a new and more stable life, no matter at what sacrifice. The patient who thoroughly understands his resources and is master of them, even if these are few and slight, is often in a better position than one who has more to draw upon but who is liable to be upset by surprises.

In the accomplishment of this task we need all the help that anatomy can furnish, but as it is the organism *in activity* that we seek eventually to understand, it is necessary that the splendid services of anatomy should be supplemented by physiology, and the physician — above all the neurologist — needs, therefore, to be trained more thoroughly than at present, to work and reason in accordance with physiological conceptions and methods as applied to the problem of disease.

As regards our duty in the treatment of our patients, we should not fail, first of all, to seek for the original cause, wherever it may lie, by which the old equilibrium of relative health has been, in one direction or another, broken into, and we are, therefore, bound to acquaint ourselves with all those functions and processes which are related to nutrition in the broadest sense. Still, for the neurologist in particular, the problem of nearest interest is often to gain a point of temporary vantage for his patient by training him to make the best of a present situation, and the methods by which this end is to be accomplished are classifiable under the general name of *education*.

In these methods the future therapeutics of the nervous system is largely to consist; to them we are more and more to look for guidance, both in relieving our patients of their ills and in teaching them how to bear them. The physician who knows best how to appreciate the needs and resources of those coming under his care, to divine their capabilities, to search out the hidden causes of their present troubles, — lying, perhaps, in the experiences of childhood, — the physician who has the trained keenness to recognize that, however poor the material with which he has to work there is almost invariably some benefit to be gained, if not in the direction of relief then in that of compensation, — such a physician as this can make himself of infinite service to the community in which he lives and works.

As among the newer representatives of the successful laborers in this field, we ought to recognize not the scientific investigators alone, but also those practical workers, whether lay or medical, who have shown what education can actually accomplish. I have in mind, especially, the physicians who have demonstrated that tabetic ataxia can be relieved, the sufferers from obsessions and morbid fears restored to their place in society, the vacant lives of imbeciles and dements made more full, and new promise given to the efforts for the reform of the waifs and wards of our great cities. In this outcome is to be sought one of the best practical pieces of evidence for the value of the physiological principle in the problem of disease.

[23] It is to be understood, as stated above, that the term "efforts" is here used in a descriptive sense alone.

Original Articles.

A CASE OF DIFFUSE ENCEPHALITIS SHOWING THE PNEUMOCOCCUS.

BY W. N. BULLARD, M.D., BOSTON,
Physician for Diseases of the Nervous System to the Boston City Hospital,
AND
F. ROBERTSON SIMS, M.D., BOSTON,
Assistant in Neuropathology at the Harvard Medical School, and Second Assistant Physician for Diseases of the Nervous System to the Boston City Hospital.
(From the Laboratory of the Boston City Hospital.)

CLINICAL HISTORY.

THE present case occurred in the service of Dr. Geo. B. Shattuck at the Boston City Hospital, to whom we are indebted for permission to use his records.

Clinical history. — The patient was a man, fifty years of age, a wood turner, a native and resident of Boston. His family history was negative. He seems to have been in good health previous to the present illness. He had scarlet fever as a child, rheumatism two years ago and "enteric fever" five months ago. He has had urethral discharge many times and "hard chancre" several times, the last time six months ago. Two years ago had several sores in his mouth and his throat was burnt out. He drinks beer or whiskey three or four times a day; tea, three or four cups a day; tobacco, fifteen cents' worth a week.

On admission to the hospital the following record was made: Definite history difficult to obtain. Patient states that he has been in bed about a month with cough and has raised considerable thick, white sputum, occasionally tinged with blood. Two months ago he vomited a cupful of bright red blood, not clotted, and a few days later he passed about half a cupful of dark, clotted blood per rectum. He complains now of progressive weakness, a feeling of feverishness and occasional night sweats. Bowels regular.

Physical examination. — Well developed and nourished. Alcoholic, mildly delirious with hallucinations. Pupils dilated, react to light. Tongue with dirty brown coat. Breath alcoholic. No tenderness or rigidity of the neck. Chest dull at base on both sides, elsewhere fair resonance with harsh, restrained respiration; numerous squeaks and rales. The area of cardiac dullness begins at the third rib above and extends 3.5 cm. to the right and 10.5 cm. to the left of the median line of the sternum. The maximum impulse of the apex beat is in the fifth space. The heart action is regular, heart sounds clear, of good quality, second pulmonic accentuated. The pulse is equal at the wrists, regular, of moderate rate and of good volume and tension. There is moderate sclerosis of the peripheral arteries. Abdomen lax, tympanitic, not tender; liver and spleen show nothing unusual. Old scar on glans. No general glandular enlargement. The deep reflexes in the extremities are lively; no edema.

Three days later it was recorded that the patient had gradually become comatose and cyanotic. Left hemiparesis was noticed. The respiration was at times rapid and superficial and sometimes suggested Cheyne-Stokes. Apparently did not suffer pain. No cough. Incontinence of urine and feces.

Physical examination. — Pupils equal, contracted, react to light. Chest shows equal expansion on either side; dull tympany over front, with faint respiration and very few rales. Heart sounds faint. Left extremities flaccid; considerable rigidity of right extremities. Reflexes lively. No Kernig sign; no Babinski. Temperature morning, 102°; pulse, 72; respiration, 43.

Again, three days later (sixth day after admission), it was noted that the cyanosis was gradually increasing. Profuse perspiration. Chest resonant throughout; many moist rales in back on both sides. Heart beat regular; sounds clear; pulse, 100; temperature, 102°; respiration, 60, rapid and superficial. Pupils contracted, left slightly smaller than right. Limbs as previously, the left flaccid, the right rigid. Knee jerks not obtained. Superficial reflexes diminished.

Patient failed slowly and died that day.

The following is the temperature, pulse and rate of respiration from the 20th, the day of admission:

	20		21		22		23		24		25		26
	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	
Temp	99.4	98.4	97	98.4	98.6	102	104.2	102.8	103.8	102.5	104	102.8	
Pulse	77	88	72	68	67	72	92	88	93	105	160+	100	
Resp	..	..	..	..	..	43	44	40	48	44	64	60	

CLINICAL SUMMARY.

Severe bronchitis in a man of fifty years with venereal and alcoholic history. Cerebral symptoms developed after a month's illness, ushered in by increasing weakness, fever and mild delirium (symptoms on admission). Two days later there appears flaccid paralysis of the left extremities with some rigidity on the right, cyanosis and incontinence. Gradual failure with rapid respirations, raised temperature, deepening coma, and death on the seventh day.

ANATOMICAL FINDINGS.

Well-developed and well-nourished male. Slight hypostatic lividity; marked rigor; no edema. Pupils equal, .4 cm.

Peritoneal cavity, normal. Appendix, 7 cm. long, adherent along the brim of the pelvis. Canal patent, contains small quantity of soft feces. Meso-appendix to tip. Mesenteric lymph nodes not enlarged.

Diaphragm: Left fifth space, right fourth space.

Pleural cavities: Right entirely obliterated by firm fibrous adhesions; left partially obliterated.

Pericardial cavity: The cavity about the entire left side of the heart obliterated by strong bands of fibrous tissue.

Heart: Weight, 380 gm. Subepicardial fat, normal in amount. Myocardium, dark red and rather soft. Endocardium, smooth. Valves, normal except the mitral, which is slightly thickened at the edges. Measurements: Tricuspid valve, 13 cm.; pulmonary valve, 9 cm.; mitral valve, 11 cm.; aortic valve, 8.7 cm.; left ventricle, 1 cm.; right ventricle, .5 cm.

No fat found in fresh specimen examined with acetic acid.

Lungs: Anterior portions normal. Posterior portions dark red, moist and crepitant. Cut surface slightly granular, small, yellowish-white plugs can be expressed from the larger bronchioles. The bronchial tubes contain purulent material. The left pulmonary artery is occluded by a red, firm, partially organized clot, adherent to the vessel wall. There are small calcified areas in both apices as well as a small nodule in the upper part of the lower lobe of the right lung, surrounded by a fibrous capsule.

Spleen: Substance, dark red. Pulp not increased. Malpighian bodies seen as grayish points, not enlarged.

Gastro-intestinal tract: Transverse colon firmly adherent to liver and spleen. Cecum adherent to abdominal wall. Otherwise the tract is normal. Small intestine is 15 feet long.

Pancreas: Vessels distended with blood. Otherwise not notable.

Liver: Weight, 1,640 gm. Much darker red and softer than normal. Surface smooth, except for adhesions mentioned. Cut surface dark brown, but considerably reddened by blood which escapes from the distended central vein. Lobules fairly well marked. Bile ducts normal. Gall bladder moderately distended and normal.

Kidneys: Weight, 370 gm. Cortex, .7 cm. Capsule thin, strips easily, leaving smooth surface. Stellate veins injected. Cut surface red. Markings a little obscure. Glomeruli seen as red points raised above the surface. No fat in fresh specimen examined with acetic acid.

Genital organs: Normal. Tubules of testicles string readily.

Organs of neck: On each vocal cord near the anterior part was a firm white nodule presenting the appearance of a healed ulceration.

Head (description by Dr. E. E. Southard): Scalp normal. Calvarium moderately thick. Dura everywhere closely adherent to calvarium, thickened over vertex to twice the usual depth and inseparable from the bone. Dura adherent to pia along lips of longitudinal fissure. Tenseness cannot be made out on account of calvarial adhesions. The sinuses contain elastic dark clot. Arachnoidal villi form a close white mat reaching indefinitely a finger's breadth on each side of longitudinal fissure from bregma to a point several centimeters behind lambda. The pia is closely stretched over slightly flattened convolutions. The smaller superficial cerebral veins are well and evenly injected. The larger veins contain no great amount of blood. The pia about superficial veins of sulci is almost everywhere thickened, and where the thickening is greatest, as about the middle cerebral and some of the superior cerebral veins, of a slightly yellowish shade of gray. Pia can be picked up and stripped rather easily on account of its thickness. The pial leaves of anterior part of longitudinal fissure are closely interadherent. The vessels at the base, explored to the primary branches, contain cruor clots.

Spread on a board, the brain is asymmetrically swollen. The right hemisphere bulges 9 cm. from median line, and flattens out a trifle. The left reaches 7.5 cm. The substance of the right parietal region is a shade softer than remainder of brain; limits of lesion indefinite. On section the lateral ventricles contain perhaps two teaspoonfuls each of clear fluid. Foramina of Monro patent. Ependyma and choroid plexuses normal.

Basal ganglia, midbrain, pons and cerebellum and bulb normal.

The tissue of the right centrum semiovale, for a distance corresponding with extent of body of ventricle, is softer and pinker than normal and contains on section numerous well-marked puncta cruenta besides a number of punctiform hemorrhages, more abundant in pea-sized to walnut-sized clusters. The deep tissue of centrum semiovale on left side also contains less well-marked and smaller areas of slight edema with a few punctiform hemorrhages. On the right side, almost the whole of the subcortical projection system would seem involved. On the left the area beneath Rolando and about Sylvian fossa seems spared except by edema.

Brain: Weight, 1,505 gm. The right hemisphere with basal ganglia weighs 690 gm., the left hemisphere with basal ganglia, 625 gm.

Spinal cord: Extradural veins injected and a little free blood in tissue about veins in cervical region. Cord cuts perfectly. No areas of softening found.

The autopsy was performed at the Boston City Hospital during the service of Dr. F. B. Mallory, to whom we are indebted for suggestions.

SUMMARY OF ANATOMICAL FINDINGS.

Marked injection of nearly all of the organs of the trunk. Acute purulent bronchitis. Edema, softening, and punctiform hemorrhage involving the greater part of the right cerebral projection system with foci in the left centrum semiovale.

MICROSCOPIC FINDINGS.

Cultures taken from the lungs, liver, kidney and the area of softening in the right cerebrum gave lanceolate diplococci showing capsules by Welch's method. These were mixed in the lungs and liver with a few colonies of streptococci and a large bacillus staining with Gram's method. The latter was also found in the cultures taken from the brain.

The larger vessels in all the organs show a slight intimal thickening.

Heart: Slight perinuclear pigmentation.

Lungs: Acute bronchitis with desquamation and with a bronchopneumonia of cellular type. There were small deposits of coarse fibrin and a fine meshwork of fibrin between the cells of the exudate. Some of the polynuclear leucocytes of the exudate contained lanceolate diplococci. Certain alveoli contained a considerable number of pigmented phagocytes.

Spleen: The capsule is moderately thickened. The trabeculæ are in places closely set. The reticulum is in places prominent. Some of the Malpighian bodies show a few hyaline deposits and the tunica media of some arterioles shows hyaline change. The pulp contains unusually numerous phagocytes, enclosing yellowish pigment. There is some free pigment. A few phagocytes contain unaltered blood corpuscles. There are more plasma cells than usual. Polynuclear leucocytes are scattered in rather large numbers throughout the pulp, and especially in association with small hemorrhages.

In the liver there is a slight narrowing and pigmentation of central cell columns, with some edema and diapedesis into pericellular spaces.

Kidneys: Cloudy swelling, especially of convoluted tubules and injection of glomeruli. Chronic intimal changes in arteries well marked.

Pancreas: Not remarkable.

Nervous system: Sections were taken from various parts of the brain and cord and fixed in Zenker's fluid, 10% formol and 96% alcohol. The stains chiefly used were methylene blue, Weigert's hematoxylin, phosphotungstic-acid-hematein and gentian violet.

The lesions involve an extensive area and vary somewhat in character and intensity. The subcortical region of the central, parietal and superior temporal convolutions on the right, and superior parietal on the left are most severely affected.

The lesions are related with the terminal branches of the cortical arterial system. They consist of minute hemorrhages with occasional pigmentation, and accumulations within and surrounding the adventitia of the vessels, consisting chiefly of granule cells, and a small number of lymphoid and plasma cells.

The external gray matter is largely free from the lesions, which are confined almost entirely to the medulla. Immediately beneath the cortex the lesions are more purely hemorrhagic in type, appearing as smaller and larger areas of fresh blood corpuscles which are clumped in the neighborhood of the vessels. Further away from the cortex the lesions become more extensive and more cellular.

Corresponding to the result of the examination of cultures from the affected areas of the brain, there are to be found in the tissue an occasional pair or short chain of lanceolate diplococci. They are rare enough to be easily overlooked if a culture did not call attention to their presence. They are found more readily in sections stained by Gram-Weigert and are associated with a large bacillus which also stains by Gram.

The latter appear more numerous so that two to three rods are found in an oil-immersion field. Considerable search shows the diplococci to be present in large mononuclear phagocytes and also inside the blood vessels.

The pia is pushed away from the cortex and its fibers are more or less separated by edema. In places there is marked fibrous thickening. Connective tissue nuclei are prominent, and there is a thin sprinkling of infiltrated lymphoid and plasma cells as well as granule cells. These cells are more abundant around some of the blood vessels.

The blood vessels are distended and injected through-

out the whole central nervous system. In the region of the lesions there is enormous distention. The walls of some of the vessels are slightly thickened. Many of the vessels show evidence of edema, the fibers of the tunica adventitia are separated and the spaces infiltrated with cells. The nuclei of the capillaries are generally swollen and prominent.

The cells found in the lesions were as follows: (1) Granule cells, (2) lymphocytes, (3) plasma cells, (4) polynuclear leucocytes, (5) eosinophiles. The granule cells appear in large numbers. They resemble those commonly seen in meningitis and cerebral softening. They occur thickly in and around the adventitia of the vessels in the affected foci, and scattered throughout the tissue in less dense arrangement.

About the same size as the epithelial cells lining the alveoli of the lungs, they are characterized by having a finely granular protoplasm and a large vesicular nucleus. This round or oval nucleus is usually found eccentrically situated and has a sharply defined, more or less irregular membrane, stained as a rule quite deeply with methylene blue, so that the small nucleolus is apt to be obscured. These cells contain fat vacuoles, detritus of myelin or blood globules. Occasionally one is found containing yellow pigment granules and rarely a pair or short chain of lanceolate diplococci.

Lymphocytes and plasma cells were found in small numbers sprinkled with the granule cells in the walls and in the immediate neighborhood of the blood vessels. Occasionally a vessel is found around which the exudate consists chiefly of lymphoid and plasma cells.

Polynuclear leucocytes are found frequently inside the vessels, but very few are seen outside. They are rarely found in the tissue, occasionally in the vessel sheath.

Eosinophiles appear occasionally in the meshes of the adventitia.

The nerve cells in the neighborhood of the lesions show pretty uniform changes, probably due for the most part to edema. They consist of the following essentials: Slight swelling of the cell body and nucleus, granular subdivision of the chromatic substance in the body and processes. In many cells the nucleus stains diffusely and the outline of the membrane is indistinct. This is more marked in the smaller cells. The nucleolus in many nuclei is somewhat enlarged and may contain several small, clear areas. Contraction of the cell body is found around the nucleus in a few of the large cells. The cell processes stain faintly, but, as a rule, they can be seen for a considerable distance from the cell body.

There are a few cells which stain very faintly throughout. The nucleus is very indistinct or absent, and the substance of the whole cell looks finely and distinctly mottled.

Some pigmentation is present, but it is not marked.

The nerve cells show much swelling and varicosity of the myelin sheath and many destructive changes of the axis cylinder affecting most of the fibers.

In sections taken from the lesions a small amount of fat occurs in various sized droplets, scattered discretely along the nerve fibers and collected in the somewhat swollen phagocytes. A few droplets of fat are found free in the vessel walls.

The neuroglia reaction of the surrounding tissue is marked. In the loose fibrillar groundwork in the area of the lesions are a considerable number of astrocytes, most abundant in the tissue immediately surrounding the foci of softening. They are several times the size of an ordinary neuroglia cell with a large round vesicular nucleus and a large amount of undifferentiated protoplasm with numerous long, coarse processes. Occasionally these cells are found with two or three nuclei. The single nucleus is eccentrically situated, often appearing almost entirely outside the body of the cell. It had a sharply staining periphery and prominent centrally placed nucleolus.

The subpial reaction is slight. A few small astrocytes appear, and there is a slight increase in the neuroglia fibers.

A few vessels in the lesion contain fibrin, but very little is present in the tissue. Small deposits of corpora amylacea are numerous throughout the medullary portion.

Cord: Marchi sections showed swelling of the myelin sheath and considerable fatty degeneration in the left crossed pyramidal tract, and in the dorsal columns, more general in the left. A few fat droplets are seen in the anterior root bundles.

The anterior horn cells present a moderate degree of central chromatolysis with eccentric nucleus (axonal degeneration).

The blood vessels are considerably injected.

SUMMARY OF MICROSCOPIC FINDINGS.

Pneumococcus septicemia; slight arteriosclerosis affecting all the organs; acute bronchopneumonia; extensive diffuse encephalitis with hemorrhages and cellular lesions related to the cortical arterial system and confined to the subcortical region. The lesions consist of accumulations within and surrounding the adventitia of large numbers of granule cells of the type familiar in meningitis and cerebral softening and of small numbers of lymphoid and plasma cells with a few polynuclear leucocytes and eosinophiles.

Solution and fatty changes of the myelin in the surrounding tissue. Proliferation and hyperplasia of neuroglia cells with formation of numerous astrocytes. Edema changes in the nerve cells of the cortex. Fatty changes in the cord and early central chromatolysis of the anterior horn cells.

Lanceolate diplococci present in cultures and found in and surrounding the cells of the exudate in the lung lesions, and in the tissue and granule cells of the brain.

SUMMARY.

The present case may be summed up as follows: After a month of severe bronchitis in a man of fifty, there develops a group of cerebral symptoms, weakness and mild delirium, followed by flaccid paralysis of the left side, with rigidity on the right, and incontinence. Death on the seventh day of the cerebral symptoms, after gradual failure and coma, with elevated temperature. At autopsy extensive diffuse encephalitis and bronchitis, with bronchopneumonia (pneumococcus). The pneumococcus was found by culture, free in the tissues, and within the phagocytes of the cerebral lesion. The lesions are related to branches of the cortical arterial system of both hemispheres, and are marked on the right side, where almost the whole of the subcortical projection system is acutely involved, by edema and punctiform hemorrhagic foci. The lesions are histologically simple, consisting of accumulations, within and surrounding the adventitia, of phagocytic cells of the type familiar in cerebral and meningeal lesions, and small numbers of lymphoid and plasma cells. The large cells

contain vacuoles, detritus of myelin, and an occasional pair or short chain of diplococci. There was no evidence of acute leptomeningitis or of ependymal changes.

REMARKS.

The acute non-purulent encephalitis of the adult was first brought prominently to the knowledge of the medical profession by Strümpell [1] in 1890, although in 1884 [2] he had described and discussed the acute non-purulent encephalitis of children. This disease was then considered as closely allied to the superior polio-encephalitis of Wernicke, and as differing from it pathologically, chiefly in the location of the lesions. The clinical symptoms, however, in the two affections were dissimilar.

Strümpell [1] describes this form of acute encephalitis in adults as an affection of very acute onset, with severe cerebral symptoms and rapidly fatal termination. Almost without prodrome a condition of dulness or apathy occurs, soon increasing to the deepest coma. This is usually accompanied by high fever, and hemiplegia appears as the loss of consciousness deepens.

Shortly after the publication of Strümpell's article other observers began to report more or less similar cases. Schmidt,[3] in 1892, related a case in a girl of nineteen, with involvement chiefly of the basal ganglia, and Fürbringer [4] and Königsdorf [5] published cases. Goldscheider [6] described a case of polio-encephalitis superior, with involvement of the optic thalamus, posterior commissure, internal capsule, and to a slight extent of the centrum semiovale. Büchler's [7] article in the *Archiv fur Psychiatrie*, describing Leichtenstern's cases, was the fullest and most complete up to this time (1891).

From the accounts of these writers it appeared that many cases of this affection were more or less closely connected with influenza, occurring either after an attack of that disease or during an influenza epidemic. In spite, however, of many attempts, the influenza bacillus could not be detected.

In 1895 Oppenheim [8] published six cases of this affection which recovered, and showed that the disease was not necessarily, or even generally, fatal. It was now recognized that the symptoms as described by Strümpell [1] must be modified, as in many cases these were prodromata, and the general course of the disease might be much less rapid than in his cases. Brie [9] in 1897 gives a good description of the symptoms.

The most important article which has appeared on this subject is, however, that of Oppenheim,[10] in which he gives a full description of this encephalitis, with a summary of all the knowledge acquired in regard to it up to the time of writing. He states that it may come on suddenly, or it may be preceded by headache, vertigo, nausea and vomiting, general weakness, apathy and insomnia. A rigor may occur. As the disease progresses the apathy becomes more marked, somnolence appears, which is apt to increase to total loss of consciousness, from which the patient cannot be aroused, or can be aroused only momentarily. This is usually accompanied by restlessness and delirium. General convulsions may occur, and in one case there was status epilepticus. Stiffness of the neck muscles and trismus have been recorded. The temperature is raised; the pulse may be slow or rapid; respiration may be rapid. The chief local phenomena are the paralysis, hemiplegia, monoplegia, aphasia; unilateral convulsions may occur. Anomalies of sensation are not marked. The deep reflexes vary. This is now the accepted symptomatology.

The first case which I have been able to find in which diplococci were detected is that of Hochhalt [11] in 1897. Fischl,[12] in 1899, in writing of the various forms of encephalitis in children, states that no bacteria have been found in them except such as might accompany septicemia.

Since 1897 little has been added to our knowledge of this disease. Friedmann's [13] article in 1899 is largely devoted to pathologic considerations, and Nonne,[14] in 1900, wrote a somewhat lengthy article on the same subject.

Meningitis, accompanied by and presumably due to pneumococci, has been known for some years. Boulez and Courtois-Suffit (1890), Hutinel (1892), Woods (1894), Ferrand (1896), Gaillard (1898), Graham (1899), may be consulted on this subject.

REFERENCES.

[1] Strümpell: Ueber primäre acute Encephalitis. Deutsch. Arch. f. klin. Med., 1890, xlvii, 53.
[2] Strümpell: Ueber d. acute Encephalitis d. Kinder, Deutsch. med. Woch., 1884, p. 714.
[3] Schmidt: Deutsch. med. Woch., 1892, xviii, 703.
[4] Fürbringer: Deutsch. med. Woch., 1892, no. 3, p. 45.
[5] Königsdorf: Deutsch. med. Woch., 1892, no. 9, p. 182.
[6] Goldscheider: Charité Annalen., 1892, xvii, 139.
[7] Büchler: Arch. f. Psych., 1892, xxiv, 730.
[8] Oppenheim: Deutsch. med. Woch., 1895, xxi, 85.
[9] Brie: Allg. Ztschrift. f. Psych., 1896, liii, 604; Neurol. Centralbl., 1897, xvi, 2.
[10] Oppenheim in Nothnagel: Spec. Path. in Therapie, ix, 1 th., 3 Abth. 1.
[11] Hochhalt: Pest. med. Chir. Presse, 1897, xxxiii, 796.
[12] Fischl: Jahrb. f. Kinder., 1899, xlix, 58.
[13] Friedmann: Arch. f. Psych., 1898, 1899, xxi, 846.
[14] Nonne: Festschrift Wilhelm Erb., etc., 1900, 1.

FLIES AND TUBERCULOSIS.*

BY FREDERICK T. LORD, M.D., BOSTON,
Physician to Out-Patients, Massachusetts General Hospital.

PREVIOUS OBSERVATIONS.

Spillman and Haushalter [1] found tubercle bacilli both in the intestinal contents and the excreta of flies in a hospital ward.

Hofmann [2] demonstrated tubercle bacilli in the intestinal contents in four of six flies caught in the room of a recently fatal case of phthisis; fly specks scraped from different parts of the room also showed tubercle bacilli. Flies were fed on tubercular sputum and the presence of tubercle bacilli observed in their excreta. Of three guinea pigs inoculated with the intestines of these flies only one developed tuberculosis. Inoculation of specks which had dried for six to eight weeks gave a negative result.

* From the Pathological Laboratory of the Massachusetts General Hospital. J. H. Wright, Director.
Read before the clinical meeting of the Medical Board, Dec. 2, 1904.

[1] Spillman and Haushalter: Dissemination du bacille de la tuberculose par les mouches. Comp. rend. 1887, t cv, no. 7, pp. 352, 353.
[2] Hofmann: Die Gefahr der Weiterverbreitung der Tuberculose durch unsere Hausfliege. Jahresb. d. Gesellsch. f. Nat. u. Heil. in Dresd. 1887-8, pp. 145-147.

Celli[3] states without details that Alessi, under his direction, fed flies on tubercular sputum. Two rabbits developed tuberculosis after inoculation into the anterior chamber of the eye with the dejecta of these flies.

Hayward[4] has recently confirmed the presence of virulent tubercle bacilli in the excreta of flies fed on tubercular sputum.

Thus far, therefore, it may be considered established that tubercle bacilli may appear in the stools of flies which have recently ingested tubercular sputum. Celli and Hayward obtained tuberculosis of experimental animals by inoculation of fresh dejecta, while Hofmann succeeded in one of three injections with the intestines and failed with specks which had dried for six to eight weeks.

PERSONAL OBSERVATIONS.

I. Flies and Tubercular Sputum under Artificial Conditions.

In August, 1904, my interest was aroused in the possible dissemination of tubercle bacilli through flies by their feeding on sputum under examination.

A. Feeding experiment: apparatus. — Three glass jars were inverted over a piece of window glass. They were raised three quarters of an inch above the glass plate and the intervening space closed with fine wire netting.

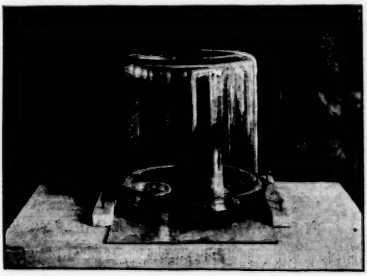


FIG. 1. — Glass jar for confining flies.

Flies and tubercular sputum. — Thirty House flies were confined in one of the glass jars (Fig. 1). Many clean cover glasses and a small glass dish containing sputum with about ten tubercle bacilli to each microscopic field were placed on the bottom of the cage. The flies were allowed to feed on this sputum between Aug. 10 and 13, 1904.

Death of the flies. — Within three days, twenty-six of the flies were dead. The four remaining flies were very inactive.

Control I: Six flies were confined in a second similar jar and fed on non-tubercular sputum. They were all found dead on the bottom of the cage within two days.

Control II: Six flies were confined in a third similar jar and fed on water, sugar and meat. Two of these died within two days. The remaining four were still alive after one week, when the experiment was discontinued.

The short duration of the life of the flies fed on tubercular sputum is not due, therefore, to tubercle bacilli, but to some other constituent of the sputum.

Tubercle bacilli in the fly. — Paraffin sections were made from many of the flies fed on tubercular sputum. Tubercle bacilli were found in the intestinal contents of all. No invasion of other parts of the body could be determined.

Tubercle bacilli in the specks: time of appearance. — Examination of the cover glasses placed on the bottom of the cage showed that the bacilli appear in the stools within at least eighteen hours after the ingestion of the tubercular sputum.

Number of tubercle bacilli disseminated. — Examination of many specks on the cover glasses showed that the number of bacilli in each microscopic field had increased from about 10 in the original sputum to 150 in the specks. Each speck contained from 3,000 to 5,000 bacilli. About 2,000 specks had been deposited by the 30 flies within three days, thus from 6,000,000 to 10,000,000 tubercle bacilli had been transferred from the sputum to the inner sides of the cage during this period.

Morphology of the bacilli in the specks. — When the bacilli in the specks were compared with those in the original sputum, it was seen that they were much larger, both in length and diameter and showed some evidence of apparent branching.

Virulence of the tubercle bacilli in the specks. — At the completion of the feeding experiments, the glass jar containing the specks was placed on a table in the middle of an unused room of the laboratory. This room (floor, 18 x 18; height, 20 feet) is lighted by two windows with a northern exposure. The direct rays of the sun do not reach it at any season of the year. A board

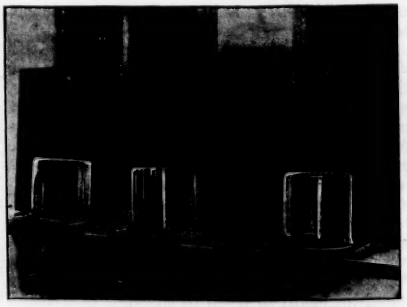


FIG. 2. — The relation of the specks to the lighting of room. Drying experiment.

three feet high was placed between the glass jar and the windows (Fig. 2) to protect the jar from strong diffuse daylight.

Guinea pigs were each inoculated with one hundred fly specks scraped from the cage at intervals of

[3] Celli: Transmissibilita dei germi patogeni mediante le dejectione delle mosche. Bull. d. Soc. Lancisiana d. Osped. di Roma. 1888, Fasc. 1, p. 1 (quoted from Nuttall. The Johns Hopkins Hosp. Rep., vol. viii, 1900).

[4] Hayward: The fly as a carrier of tuberculous infection. N. Y. Med. Journal and Phila. Med. Journal, Oct. 1, 1904.

one, eight, fifteen, twenty-eight and fifty-five days. The first inoculation was made subcutaneously, the others into the peritoneal cavity. The animals were killed after five to seven weeks. Tuberculosis was produced by the inoculated material in the first three animals, showing that virulent tubercle bacilli were present in the specks for at least fifteen days. The pigs were negative after this interval.

The pig inoculated with the specks which had dried for only one day showed generalized tuberculosis. A gradual diminution in the extent of the process was observed. The pig killed after fifteen days presented large isolated tubercular lesions of the spleen and of two lymph glands: one in the gastro-hepatic omentum, the other in the anterior mediastinum. Tubercle bacilli were demonstrated in the lesions.

The above experiment is thought to show that fly specks contaminated by tubercle bacilli may be a source of danger by direct transfer to the human subject, as in the ingestion of infected food, for at least fifteen days after their deposit, if exposed only to diffuse daylight in the interior of a room. Previous observers have shown that tuberculosis can be produced in animals by feeding them on infected material. As this has been already established (see below) it was not thought necessary to feed the infected fly specks to animals, but merely to determine their virulence and its duration.

The far greater frequence of tuberculosis of the lungs in the human subject and a mass of experimental data (Cornet [5]) indicate that the usual contagion of tuberculosis is not by the ingestion of infected food, but by the drying and distribution as dust of infected material through the air.

It was next of interest, therefore, to try to determine whether infected fly specks play any part in this indirect and more common infection by contamination of the surrounding air.

B. Inhalation experiment: apparatus. — A glass cylinder (18 x 2 inches) was closed at either end by wire netting, tacked to a rim of cork. One end of this tube was closely fitted to a hole in the side of a wooden box. The inner opening of this hole into the box was also closed by wire netting, leaving a space of one-half inch between this and the netting closing the end of the glass cylinder. The box (8¾ x 9 x 12 inches) was closely fitted with a glass cover and its sides sealed by pasting paper about it. A stiff rubber tube connected with a water vacuum apparatus [6] (Eimer and Amend) was led through the side of the box opposite the entrance of the glass cylinder (Fig. 3). The air in the box was exhausted by this means so that a constant slow current passed through the cylinder into the box and out the rubber tube at the other side. The direction of the air current was readily shown by blowing smoke toward the free end of the glass cylinder. An attempt was made merely to keep a gentle flow of air through the cylinder into the box.

[5] Cornet: Spec. path. u. Ther. Nothnagel. xiv Bd. 2. II Abth.
[6] Suggested by J. H. Wright.

Twenty-three flies were confined in the glass cylinder, with tubercular sputum. They deposited, between Aug. 17 and 19, a large number of specks on the inner surface of the tube. During these two days all but four of the flies had died. These survived only twenty-four hours longer.

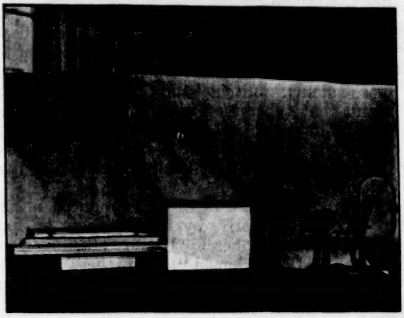


Fig. 3. — Inhalation experiment. Pig confined in box for eight days.

On Aug. 19, a young and healthy guinea pig was placed in the box and a slow current of air drawn through the glass cylinder into the box by means of the vacuum apparatus. The pig was confined here for eight days. The apparatus was kept in the same room and under the same conditions as in the feeding experiment. (Experiment A.)

Twelve weeks were allowed to elapse before this animal was killed. At the autopsy, not a trace of tuberculosis could be found in any part of the body. Microscopic examination of sections from different parts of the lungs revealed no lesions.

Cornet [7] has shown that guinea pigs can readily be infected by dust from tubercular material. Of forty-eight guinea pigs exposed in a room to dust shaken from a contaminated carpet, tuberculosis was produced in forty-seven.

From the above experiment (Experiment B) there is no evidence of the spontaneous liberation of tubercle bacilli from the fly specks, even when swept by a gentle current of air. It is probable, however, that when mechanically disturbed infection of the air would occur as in Cornet's carpet experiment.

II. Flies and Tubercular Material under Natural Conditions.

I have frequently observed the eagerness with which flies feed on sputum even when other food is accessible. Their dejecta frequently soil the walls and cloud the windows of unscreened rooms. During the fly season, I have counted many thousand fly specks on windows which are frequently washed. In their migration from one kind of food to another, they must deposit great numbers of specks on food. If they eat

Cornet: *l. c.* p. 61.

of tubercular material and later alight on food stuffs intended for human ingestion, they may deposit on them great numbers of tubercle bacilli. If these infected specks are unexposed to sunlight or strong diffuse daylight, they may maintain their virulence, as the above experiment (Experiment A) has shown, for at least fifteen days. If the specks are exposed to the direct rays of the sun they probably lose their virulence much more quickly. Mitchell and Crouch,[8] for example found that tubercular sputum, placed in direct sunlight failed to infect guinea pigs after thirty-five hours. If preserved in the dark, they may remain infective for a much longer period than fifteen days.

Tuberculosis may readily be produced in animals, experimentally, by feeding them on food infected with tubercle bacilli (Baumgarten,[9] Fischer,[10] Dobroklonski [11]). In these animals, the tubercular lesions are in the cervical lymph glands, the intestines, the mesenteric glands, the liver and more rarely the lungs (Baumgarten[12]). By analogy, primary tuberculosis of the intestines or the mesenteric lymph glands in man may be regarded as due to the ingestion of infected food. Many such cases have been reported among others by Demme,[13] Ollivier,[14] and Wyss.[15] In such infections I have no doubt that flies play a part.

Cornet readily produced tuberculosis of the lungs and bronchial glands in guinea pigs by dust from his infected carpet. If undisturbed, spontaneous liberation of tubercle bacilli from fly specks is unlikely, even when they are exposed to a current of air. (Experiment B.) If mechanically agitated, however, aerial infection probably occurs, as with dried tubercular sputum.

CONCLUSIONS.

1. Flies may ingest tubercular sputum and excrete tubercle bacilli the virulence of which may last for at least fifteen days.

2. The danger of human infection from tubercular fly specks is by the ingestion of the specks on food. Spontaneous liberation of tubercle bacilli from fly specks is unlikely. (Experiment B.) If mechanically disturbed, infection of the surrounding air may occur.

As a corollary to these conclusions, it is suggested that

3. Tubercular material (sputum, pus from discharging sinuses, fecal matter from patients with intestinal tuberculosis, etc.) should be carefully protected from flies lest they act as disseminators of the tubercle bacilli.

4. During the fly season, greater attention should be paid to the screening of rooms and hospital wards containing patients with tuberculosis and laboratories where tubercular material is examined.

5. As these precautions would not eliminate fly infection by patients at large, food stuffs should be protected from flies who may already have ingested tubercular material.

[8] Mitchell and Crouch: Journ. of Path. and Bact. vi, p. 14.
[9] Baumgarten: Cent. f. kl. med. 1884, no. 2.
[10] Fischer: Archiv. f. exp. Path. u. Pharm. Bd. xx.
[11] Dobroklonski: Archiv. f. m. exp. 1890, p. 253.
[12] Baumgarten: *l. c.*
[13] Demme: quoted from Cornet, *l. c.*, p. 100.
[14] Ollivier: quoted from Cornet, *l. c.*, p. 100.
[15] Wyss: quoted from Cornet, *l. c.*, p. 100.

INNOCENT CASES REPORTED AS DIPHTHERIA.

BY HIBBERT WINSLOW HILL, M.D., BOSTON,
Director Boston Board of Health Bacteriological Laboratory.

THAT true cases of diphtheria occur, not seen by a physician, or being seen, escaping correct diagnosis, or being recognized, failing to be reported as diphtheria, is unquestionably true, although the actual number or percentage of cases thus escaping registration cannot be determined. Conversely, many cases diagnosed as diphtherai are undoubtedly really innocent, and even of those reported as diphtheria, a very appreciable percentage are not diphtheria.

This latter percentage can be determined, under bacteriological control, in two ways. The following figures give the results of applying these methods to the bacterial results obtained by the Boston Board of Health laboratory.

First method. — The physician's diagnosis at the time of taking the first culture for diagnosis was "diphtheria" in 1251 cases (1898–1900). Of these, the bacteriological report was positive in 785 cases, an average of 62% of positive clinical diagnoses confirmed, or about 38% in error.

Second method. — When cases bacteriologically positive for diagnosis come to be examined later on for release (soon after the disappearance of the membrane, usually), from 40% to 50% of the cases (469 cases out of 1,010 [1901–1902]), yield positive cultures for release. On the other hand, there were 1,020 cases (1901–1902) reported as diphtheria without any culture positive for diagnosis. When these cases came to be released by culture, 473 should have shown positive cultures on the above stated grounds, had the whole number been originally true diphtheria. As a matter of fact, only 298 cases proved positive for release, corresponding, therefore, with about 636 originally positive cases, and leaving about 384 which were probably negative throughout, or about 38%. The physician would, therefore, appear to be right, by either method of calculation, in only about 62% of those cases which he calls diphtheria without cultural aid. (This second method of calculation was suggested by J. F. Broderick, clerk in this laboratory.)

It is because of such considerations that the New York City Board of Health will not accept a report of diphtheria unless accompanied by a positive culture; if the physician does not take a culture, a medical inspector is sent to take one. Similarly, the Boston South Department refuses to accept a clinical diagnosis of diphtheria for admission, except in cases very obviously developed to the hospital standard. Dr. McCollom believes that cultures should be taken more freely in all such cases than at present, notwithstanding that the profession in Boston are amongst the foremost in this country in the use of bacteriological methods in diagnosis.

REMARKS ON THE JURISPRUDENCE OF CIVIL MALPRACTICE, BASED PRINCIPALLY ON THE DECISIONS RENDERED BY FRENCH COURTS.

BY CHARLES GREENE CUMSTON, M.D., BOSTON.

(Concluded from No. 23, p. 627.)

THE magistrate then, after having recalled that the defunct was afflicted with fatty degeneration of the heart, as shown by the medico-legal experts, at the time the medicine was administered, added: "Was there ignorance on the part of the accused in not discovering this condition of the heart? It is recognized that the disease in question may escape the notice of the most distinguished physicians. Now, it would be a monstrous act to declare a man guilty of insufficient ability for not having discovered a condition that the most capable do not always find. It has been decided that a man is not held to apply in the accomplishment of his task an extraordinary degree of knowledge, but only the normal amount."

This English jurisprudence is in all points similar to the French, as will be seen by comparing it with the decision rendered at Dalloz which runs as follows: "There are fundamental rules in the science of medicine, and truths which are unanimously recognized and reign as axioms. Nobody who professes the art can fail to uphold the same, . . . etc." In the doctrine of French jurisprudence the same ideas are to be met with, and Max-Lecomte says: "Physicians are liable for damages committed in the practice of their art when these mistakes are proven, independent of the medical doctrines, and based upon the rules of prudence and common sense to which the exercise of every profession is subjected." Among French physicians this opinion is also sustained; and Briande and Chaudé state that "the courts should admit either civil or penal liability of the physician when he has given evidence of an ignorance in the most elementary procedures of his art," etc. And the same is upheld by Brouardel, Vibert and Legrand du Saule.

It is evident that one cannot expect a marked degree of ability from every physician or a penetrating mind that not every one can possess or a scientific aptitude which only belongs to those that Nature has endowed with great intelligence and an absolutely exceptional power for work. In a case for malpractice tried in Paris, the court rendered a decision in which this idea was upheld, as follows: 'The court does not consider that the defendant, Dr. R., has been lacking in the proper degree of diagnostic knowledge, and consequently has not been the means of exposing L. (the plaintiff) to those perils which a more experienced practitioner might have avoided or dispersed." This decision, as far as I can learn, is in accord with a number of similar ones rendered in the United States.

We believe that on general principles the court is not in a position to criticise the manner in which a remedy was administered, or the skillfulness with which an operation has been executed, but only on the single point, namely, to know if the physician against whom the charge is brought is ignorant of those things which every physician should know. In order to remain within the just limits, says the eminent Denis Weil, "one should start with the idea that the physician, from his diploma, is legally presumed to possess a known dose of capacity, a minimum of knowledge which is the *raison d'etre* of his privilege. This point having been ascertained, the court resorting to the usual expert system should, if ordered to settle its verdict, simply examine whether or not the conduct of the physician is compatible with the minimum of capacity implied by the diploma."

Very often, especially in surgical operations, the injury inflicted on the patient is not due to ignorance on the part of the operator, but to a moment of vertigo, a forgetfulness of himself, produced by the difficulties of the operation, by the dangers to which his patient is exposed, or by the fear on the part of the operator that he is not acting with sufficient rapidity to save the life which is confided to his care. When the situation is perilous during an operation it is necessary to act quickly, and a false movement whose consequences may be fatal is in most instances quite excusable. In these supreme moments one should take seriously into consideration human weakness, and not expect from a man those things which are far above his strength; and as an operating surgeon I would impress upon my legal friends present that to remain without pity when facing human suffering and to preserve both calmness and *sang-froid* when one feels that the human life confided to your care is escaping from your grasp is possible only among very few surgeons. Every physician, no matter how cold blooded, will some day or other fall a victim to the weakness of human nature; and it should be recognized that, in general, the emotion is all the greater and dominates the mind of the physician with more intensity in direct relation to the amount of devotion possessed by him.

We would offer as a general rule that there is no liability on the part of a physician in cases where the error or the operative accident is due to the condition of mind of the operator when justified by the conditions arising during the operation. We may be considered as making a serious concession in the question of liability, and that we thus allow numerous physicians, guilty of imprudence, negligence or gross error, to escape just punishment. This, however, we believe not to be the case, because when a physician is called upon to perform an operation of such gravity that death may result, several people are always present at the time, usually physicians and nurses, whose testimony will easily enlighten the court as to the condition of the mind of the operator, on the point as to whether or not he remained master of himself or if from emotion he lost his head.

The difficulty for the court is the appreciation of the acts of the physician; but the expert testimony will show whether mistakes in practice have occurred, and the testimony will show whether the physician may be held liable or not. If

certain acts of a physician are without doubt gross mistakes, as for example opening of an artery which is left without being tied, or the removal of an organ necessary for life, there are many others which will provoke a discussion among experts, and if a perfect accord is not arrived at, it would be better practice, in our opinion, for the court to pronounce against the liability of the accused, or at least submit the case to a new set of experts.

In obstetric practice how many unfortunate outcomes are the result, not only of the inexperience of the attending physician, but also a profound ignorance of the practice and science of this all-important art. Labors, it is true, oftentimes are complicated, necessitating serious operative interference, and nearly always surrounded by unforeseen mishaps and accidents. Besides, they are of incontestable difficulty, and usually it is not the physician, but fatality, that holds in its grasp success or death. Now, although the judge should take into serious consideration these points, it is nevertheless true that he should be severe when it is shown that ignorance on the part of the physician is the cause of the mishap. In France the abuse of violent means has always been considered as a serious mistake, and likewise severe rupture of the perineum, etc., have been held as instances of civil malpractice. There have been cases on record, both in this country and abroad, in which, by rupture of the vagina during labor, the intestines have come through the rent and have been mistaken for the head of the child, resulting in death to the mother from rupture of the gut by the traction exercised upon it. Nevertheless, many eminent physicians have declared that this mistake should not be considered reprehensible, because they hold that the intestine and fetal head may resemble one another so closely that even a very competent operator might not detect the difference. It is related by Toulmouche that experts consulted in an affair of this kind declared that "even a very experienced physician might, under certain circumstances, mistake loops of intestine for the head of the child," and he goes on to say that "by introducing the hand into the vagina a mass of intestine has been mistaken for the fetal head. The nervous exhaustion and fatigue of the operator may be the cause for such mistakes."

Violent tractions, resulting in fatal consequences for the mother, unfortunately occur too frequently. The famous Tardieu relates that during the month of August, 1839, a student who represented himself as a physician went to deliver a woman in labor for three hours, pulled upon the uterus until the organ was entirely separated from the body, leaving only one of the tubes, both ovaries and a portion of the broad ligaments.

In 1862, a physician, summoned for a labor, tore away the arm of the child by a violent traction, and thus rendered more difficult the delivery by three physicians who later on operated. According to their report, the act of the physician constituted a fact in contradiction to all rules of the art and ordinary common sense, and this violent maneuvre, having produced internal contusions, had contributed in prolonging the illness of the mother. Consequently, the Tribunal of Nantes, basing its decision on the opinion of the experts, condemned the defendant.

The fact of not having recognized a post-partem hemorrhage has been considered as a case of negligence by the French courts, as follows: "Since the physician has committed the double error by prescribing cold drinks, and another still more serious, in not recognizing the occurrence of the hemorrhage, and especially from the fact that he did not remain with the patient," [3] etc.

This leads me to narrate one of the most tragic, and at the same time perhaps the most ardent, trials for malpractice that has ever been heard. The facts of the case are briefly as follows:

On the 11th of September, 1897, Dr. L., living at Charonne, was requested in the night to deliver Mrs. F. He took with him a pair of forceps, the only instrument in his possession, to proceed to the obstetrical operation, and arrived at the house of Mrs. F. whom he found attended by a midwife.

The patient had had five previous labors, but the present one presented very great difficulty. Dr. L. vainly applied the forceps three times, the use of which, according to the testimony of those present at the operation, he was not familiar with, and obtaining no result the doctor declared that there was no other way of going on excepting by perforating the child's head. The doctor arranged for the operation of craniotomy, but he did not own any of the usual instruments employed for this operation. After having ascertained that the heart sounds of the child were no longer audible he tried to use the points of his forceps which was too short, and having asked the husband for an instrument, the latter gave the doctor a mattress needle, which he thought he could use. With the aid of this needle, which had not been rendered aseptic, he perforated the head of the child and, with a large scissors, which he applied on the child's head, the skull was perforated by hammering it in. After this, Dr. L. was not long in delivering the body. He then left the mother, believing to have successfully performed a very difficult operation.

Mrs. F. soon showed symptoms of peritonitis, and was taken to the hospital where she died three days later. Dr. L. was sued as the direct and involuntary cause of this death. The experts appointed by the court concluded that the death was due to a peritonitis resulting from a double perforation of the bladder; that this double perforation had been made by a pointed instrument such as the needle used by Dr. L.

The court concluded that (1) Dr. L. was inexperienced in the practice of obstetrical operations, and in the use of the forceps. (2) That he did not call another physician when he found himself in the presence of an operation as serious as craniotomy and which he had never performed. (3) That he had given evidence, in performing craniotomy, of a carelessness and manifest ignorance of those things that every professional man should

[3] Tribunal correct, Seine. 11 avril 1852.

know, because after having introduced the mattress needle, L. did not direct it either with the hands or the fingers, and that, consequently, he had been unable to prevent the disorders which had been produced in the organs of the woman.

In spite of the opinion of Professor Pinard, who declared that the perforation in the bladder could have been produced by splinters of bone, and that Dr. L. must have directed the needle, because if he had not done so the autopsy would have shown lesions in the vaginal sac, nevertheless Dr. L. was found guilty and sentenced.

The result of the trial caused much feeling in the lay press and medical circles. It must be admitted that the court was not only extremely rigorous, but that it went beyond the limits of its power as regards medical liability. In the first place, on what testimony could it base its opinion that Dr. L. handled the forceps badly? Simply on that given by people, honest without a doubt, but whose competence was quite insufficient to be of any value whatsoever.

Secondly, the court considered it a very serious mistake on the part of the doctor not to have called another physician. Did he have the time? Dr. Magyrier, called as an expert, declared at the trial that Dr. L. was guilty of this dilemma: either not to perform the operation, and the woman would die, or to perform it under particularly difficult conditions, thus offering the only chance of saving the life of the patient. And even supposing that Dr. Magyrier and the other experts should have declared that Dr. L. had time to call in another physician, the fact that he believed that he did not have a minute to lose would have been on his part an error in prognosis, the appreciation of which is not within the competency of the courts, and cannot give rise to the question of liability.

And lastly, the most serious charge made against Dr. L. was the carelessness of which he showed proof in the performance of craniotomy. In the first place, he had not rendered his needle aseptic. Now, we believe, that asepsis or antisepsis is a purely scientific question, and a court is not in any position to declare that a physician was right or wrong, to follow or not to follow the aseptic or antiseptic technic. Dr. L. had not directed the needle with either his hands or his fingers, and this had for a result, according to Drs. Socquet and Magyrier, perforation of the bladder and fatal peritonitis. It should be pointed out that the experts were not unanimous in their opinion, and Professor Pinard declared that it was not established that the perforation of the bladder had been produced by the mattress needle, and that, on the other hand, it appeared most probable that Dr. L. had directed it in its course.

The court should have taken into consideration the difficulties presented by the operation for a young physician who did not have the necessary instruments, for the nervous strain under which it was impossible for him not to be, and lastly, basing itself on the conclusions of the experts, who said that the operator had not proceeded "with all desirable prudence and skillfulness," to acquit Dr. L. It preferred, contrary to the jurisprudence established up to that time, to pronounce itself on purely scientific questions and on the skillfulness with which an operation had been performed. From this resulted a judgment that the Court of Appeals of Paris hastened to reverse. In a decision rendered on March 4, 1898, it acquitted Dr. L. and made *nil* all the charges that the lower court had made against the defendant. As to the lesions found at autopsy, the court declared with reason that they were the result not of an operative error, but of an operative accident.

It would appear that in matters surgical the mistakes would be more visible, and that the rôle of a magistrate destined to appreciate them would be easier; but here again one cannot surround oneself with too many precautions, and the best expert testimony should be consulted. Tourdes says: "In surgery the results are tangible, and nevertheless it is often difficult to appreciate whether or not an error has been committed, whether it has produced complications and whether it has rendered the operator liable for malpractice. One should distinguish between a gross mistake and an unfortunate case. A surgeon, ordinarily most capable, may have a moment of weakness. Who would dare to undertake a perilous operation, the last hope for the patient, if the slightest deviation of the scalpel, aggravating the peril, should give rise to lawsuits?" In 1835, Dr. Beaude wrote as follows in the *Gazette des Tribunaux:* "Can one believe that it is an easy matter to give an opinion on a case of surgery when all is consummated, when the act is accomplished? Who would be able to state what the situation of the patient and the surgeon was, what were the exigencies of the moment and what dangers the surgeon believed to have set aside in practicing those very mutilations whose traces alone now afflict you?"

Laparotomy, that not forty years ago was considered so dangerous that it was only reserved for hopeless cases, is to-day a most ordinary operation. Nevertheless, numerous cases in which the physician is liable for malpractice, due to gross error committed during a surgical operation, are not infrequent, but which time will forbid discussing. The question of anesthesia could also be discussed with profit, but would carry us far beyond the intended limits of this paper, and having ended with the question of civil malpractice as understood in France, we would resume the question of the jurisprudence as follows: In principle, the physician, like any other citizen, is liable for his acts, but his liability has limits; and with Dupin we may conclude "that the physician and the surgeon are not indefinitely liable, but they are sometimes; they are not always, but one cannot say that they never are."

We do not dispute the fact that in applying rules that we have developed in this paper, it might sometimes happen that a physician having by his negligence committed an injury might escape justice. The most perfect law can only allow the punishment of mistakes which are both

evident and certain. It would be unjust should it punish a presumed mistake, one which is suspected but which cannot be established by facts, because although it allows the punishment of the guilty it would also have a most odious result, namely, to strike honest and devoted members of the medical profession. Medicine has its source in the most noble sentiments of the human heart and represents all that there is noble in our moral nature. As the conscience becomes more enlightened, instinctive compassion for the suffering of others becomes more marked, it expands and transforms into a moral and religious idea, namely, that of duty, whose highest and purest expression is the love of man for his fellow beings, in charity, and in devotion to his fellows.

Tradition shows that among the primitive people religion and medicine were confounded, and Christ himself cured the sick and resuscitated the dead. Christianism founded religious corporations devoted to the treatment of the sick; it created hospitals and multiplied in every imaginable way institutions for giving medical assistance. The most obscure physician incessantly comes in contact with things which strike the vulgar with terror. Contagion, infection, the miasms of epidemics are the dangers that he braves, not once by chance and under the observation of the world, but every day, obscurely, without any hope of reward or distinction. Death menaces at every hour him who disputes its victims. It menaces him in silence by the sick bed, and again threatens him brutally, when under the balls of the battlefield he comes to dress the wounds of the enemy. But the physician does not withdraw, and yet he knows all this, because although he goes there with his life, he also carries his honor with him, and the honor of the physician is precisely his devotion to humanity.

One calls upon the devotion of the physician in all its forms, and everywhere he responds to the call, gives his work and is everywhere prodigal with his science and his life. The world and the public finds this so natural, because it has become so rooted in custom, that, with the aid of ingratitude, liberality and devotion on his part have finally ended in seriously compromising the professional future. To-day society demands long studies, serious guaranties of scientific attainment which are by no means gratuitous, as well as practical capacity. To-morrow it will summon this physician and will accept his devotion in all its forms. What makes the beautiful profession of medicine so noble is, above all, the moral value that goes with it, and this value is independent of any official position. No matter what position one holds in medical hierarchy, one may be proud of the services rendered and of his moral dignity. It belongs to the modest practitioner who with difficulty crosses the snowy mountains to reach the sick bed just as much as to the fashionable physician who rolls in his carriage over the streets of the great cities.

The medical fraternity is the symbol of legality, and places in the same ranks the dignity of the physician of the poor and that of the physician of the rich, because everywhere where medicine is exercised it is at the service of humanity at large.

It is in his own conscience that the physician should always look for strength and courage, and it is here that he will find the most powerful stimulant for sustaining him everywhere and forever at the height of his mission. If he succeeds, the practice of his profession will reserve for him the greatest and the most noble recompenses. To preserve the head of a family, a mother for her children, a child to his parents; to give health to the workman who has only his arms to sustain his family and keep it from misery; to bring to light a child whose life is disputed by death,— all these are intimate joys for him who has a medical conscience and which compensate the many trials of life. To cure disease and preserve health is the essential aim of medicine. To attain this end, to realize this mission, the practice of medicine can only follow one general direction, and that is to employ what is useful and do away with everything which is harmful. The essence of medicine resides in this one thing, and it is to this end that all art and all practical tendencies of medical science aim.

Medical Progress.

REPORT ON PEDIATRICS.

BY THOMAS MORGAN ROTCH, M.D., AND JOHN LOVETT MORSE, M.D.

PSEUDO-ASCITES.[1]

WHILE free fluid in the peritoneal cavity is ordinarily recognizable with ease, other conditions may cause similar symptoms. Dr. L. Tobler has described under the name of "pseudo-ascites" a condition which is dependent on the presence of fluid in a distended small intestine with an elongated mesentery. The affection was observed in children between two and one-half and nine years of age, and especially in girls. It is characterized by gradual increase in the size of the abdomen, in connection with continued, intermittent or recurrent diarrhea, lasting for months or years. The child, which may likewise be rhachitic, becomes debilitated and emaciated. It may exhibit also enlarged lymphatic glands or tuberculosis of the bones or lungs. There is, as a rule, no fever, and subjective symptoms are usually wanting, or there may, from time to time, be complaint of abdominal pain.

As a rule, the abdomen itself is distended, its cutaneous covering stretched, shining or scaly, the umbilicus obliterated, the veins distinct. In the standing posture the abdomen is not rarely pendulous, forming at times a transverse fold at the symphysis, and frequently the resistance is increased in the lower portions. Variations in the state of the abdomen take place, and distention may be replaced by relaxation, with a sense of doughy resistance in the hypogastrium, and at times a splashing sound may be appreciable. Undulation may be present in either event, the most distinct and shortest wave impulse being obtained when the area of dullness is considerable and symmetrical and the tension

of the abdominal walls is marked. The impulse is not appreciable above the level of dullness as it is in the presence of true ascites. The percussion-dullness varies in extent, position, outline and mobility in individual cases and in the same case at different times.

The condition must be differentiated, especially from tuberculous peritonitis. In both the physical signs develop gradually, but the latter is likely to be attended with fever, severe persistent pain, and uninterruptedly progressive emaciation, while in the former the signs are variable, with remissions and exacerbations. Pseudo-ascites is further characterized by diarrhea, the stools being numerous, often copious and presenting catarrhal features, while the dejections of tuberculous peritonitis are few and thin. Although the physical signs are suggestive of the presence of fluid free in the peritoneal cavity, such a condition is not found on operation or at autopsy. The peritoneum is, as a rule, entirely uninvolved, and solid and cystic tumors are wanting. The phenomena are best explained by the presence of fluid in portions of the intestinal tract, whose tone is impaired as a result of catarrhal conditions, and which are at times displaced downward in conjunction with elongation of the mesentery.

ANEMIA INFANTUM PSEUDO-LEUCEMICA.[2]

After reviewing the literature hastily, Lehndorff reports a fatal case in a baby of eighteen months. There was marked enlargement of both liver and spleen, with all the symptoms of a severe progressive anemia. There was marked oligochromemia, the hemoglobin falling as low as 10%. There was very marked diminution in the number of red corpuscles, with marked variation in their size and shape, and polychromatophilia, while many of them showed granulations. Nucleated cells were nearly as numerous as white corpuscles. Normoblasts were from five to eight times as numerous as megaloblasts. Nuclear figures were common. The white corpuscles varied between 15,000 and 40,000, and showed marked polymorphism. The large mononuclear cells and transition forms were especially increased. Mast cells were very rare. Myelocytes were usually not numerous, but at one time reached 12%.

The autopsy showed nothing macroscopically characteristic of leucemia. Microscopic examination, especially of the liver and kidneys, showed pictures which were entirely identical with those which are usually seen in myelemia. The spleen and lymph glands were comparatively much less affected, however, than the liver and kidneys, the myeloid transformation in them being very slight. Striking, also, was the absence of pigment and of siderosis.

He concludes that, with the exception of a few cases, most of those reported have absolutely nothing to do with the disease, and that the most varied pathological conditions have been described under the name of anemia infantum pseudo-leucemica. He thinks that in connection with the well-known clinical picture, the characteristic condition of the blood — severe anemia, numerous nucleated red corpuscles, especially megaloblasts, nuclear figures, polymorphous leucocytosis of moderate grade with a variable percentage of neutrophilic myelocytes — makes a pretty definite symptom complex.

He then calls attention to the fact that there are no accurate investigations of the morphology of the red marrow in infancy, either under normal conditions or in disease, especially in leucemia, and that the diagnosis is therefore rendered much more difficult. He states that the occurrence of foci of myeloid tissue in the various organs may be regarded as an embryonal reversion, and that the less developed the organism, the more easily the blood-forming function may be awakened in the various organs. An unknown noxious agency, as, for example, severe rhachitis or congenital syphilis, injures severely the hematopoetic apparatus. Myeloid foci may then develop in the various organs as the result of the reaction of the system.

He concludes that "anemia pseudo-leucemica" may be isolated as a well characterized symptom complex, and that in all probability it represents myelogenous leucemia in infancy, the clinical course and pathological anatomy being modified through the anatomical peculiarities and perhaps also through the concurrent diseases of this period. He thinks, however, that it is too early to give up the present name.

THE BLOOD IN CHOREA MINOR AND TIC CONVULSIF.[3]

Schaps examined the blood several times in each of eleven cases of chorea in children between six and seventeen years of age. He found usually, but not always, a slight or medium leucocytosis. In individual cases the number of the leucocytes varied considerably without any evident cause. In four of the cases there was an increase in the number of eosinophilic cells, and in four others an increase in the number of lymphocytes. The red corpuscles were counted in four cases and no marked variation from the normal found. Supposing that the anomalies found in the blood in chorea were due to the infectious nature of the disease, he attempted to confirm this by examining the blood in several cases of tic convulsif. He hoped to find differences which would be of value in diagnosis. In two of the three cases which he examined, however, there was a leucocytosis present. In both, moreover, there was a lymphocytosis. He suggests that as both diseases are accompanied by more or less violent muscular action, that the blood changes may have a mechanical cause. He concludes that, at any rate, neither a leucocytosis nor a lymphocytosis alone is proof of the infectious nature of a disease.

EOSINOPHILIA IN AN INFANT NURSED BY A MOTHER AFFECTED WITH TAPEWORM.[4]

An infant, which was normal at birth and gained regularly for a time, began to lose weight, strength and color when about two months old.

After a few weeks the milk and blood were examined. The milk showed nothing abnormal. The blood contained 17% of eosinophiles. The mother's blood contained 8% of eosinophiles. Examination of the mother's feces showed the presence of *tenia mediocanellata*. Two weeks after the removal of the worm, the eosinophiles in the infant's blood had fallen to 2½%.

THE ELEMENTS OF TISSUE CALCIFICATION AND THEIR RELATION TO RHACHITIS.[5]

This paper begins with a long experimental study on both children and animals with regard to the absorption of calcium. The experimental part should be read in the original, as it is not suitable for abstraction. He shows that both living and dead animal tissues have the power to take calcium salts out of solution. This power is not limited to bone and cartilage. The calcium is not held by any "vital" function of the cells or in chemical combination. The combination must be mechanical as the result of an affinity of the body tissues for calcium ions. Experiments with rhachitic bone and cartilage show that their ability to hold calcium is the same as that of normal bone and cartilage. Rhachitis is, therefore, not due to a diminished supply of calcium or to a diminution in the power to absorb calcium. His experiments and others' also prove that rhachitis and pseudo-rhachitis produced by giving food in low calcium are different processes, and hence arguments as to the nature of rhachitis based on the assumption that the two processes are the same are unsound.

In the second part he takes up the literature of the calcification of tissue and draws the following conclusions from his study of the literature. A formative impulse, apparently originating in the bone (and cartilage) cells at a certain stage of their development, causes a progressive change of a certain portion of the surrounding tissue, as the result of which this tissue acquires a specific (originally at any rate mechanical) affinity for the calcium salts of the blood and of the tissue fluids. This portion is at first saturated with calcium salts in solution which are precipitated and go into combination with the tissues.

In rhachitis the calcium salts are stored in insufficient quantity or are imperfectly fixed because the specific affinity is lacking. The reason of this is an incomplete metaplasia of the tissue. Absolute proof of this is, however, undoubtedly lacking, but it is imaginable that there is a functional disturbance in the life of those cells whose active principle (somewhat in the nature of an autolytic ferment) should exert a transforming action on the surrounding tissues.

The generally recognized therapeutic action of phosphorus upon rhachitic processes is in accordance with this conception, as it is well-known that the use of phosphorus incites to a marked degree destructive processes in the normal body which may be included in the autolytic group.

NORMAL PERIODICITY OF THE GAIN IN WEIGHT OF CHILDREN.[6]

Karnitzky reports his observations on his own five children who were well and developed normally. At the beginning of the period of observation, which lasted between three and four years, the oldest child was twelve and one-half years old, the youngest, four years old. During a year of this time all the children were weighed daily, in the morning. All the children showed a regular periodicity in their development. Three periods could be distinctly recognized. First, a marked increase in the weight curve in the autumn, from August to the middle of November, or the end of December; second, a moderate increase in weight from the end of December until the end of March, or the beginning of April; and finally, a diminution in the weight from the end of March or the beginning of April to the end of June or July. This same regularity in the variation in the weight was manifest in the three other years in which the weighings were not quite so frequent. Karnitzky is certain that his observations show that the variations in development were not accidental, but due to the influence of the time of year.

REFERENCES.

[1] Tobler: Deutsches Archiv für klinische Medicin, vol. lxxx, Nos. 3–4, p. 288. Editorial in the Journal of the American Medical Association, vol. xliii, no. 12, p. 816, Sept. 17, 1904.
[2] Lehndorff: Jahrb. f. Kinderheilkunde, 1904, vol. 60, p. 194.
[3] Schaps: Jahrb. f. Kinderheilkunde, 1904, vol. 60, p. 29.
[4] Gagnoni: Rev. de clin. Ped. mai, 1903. Abstract in Archives de Médecine des Enfants. 1904, vol. 7, p. 368.
[5] Pfaundler: Jahrb. f. Kinderheilkunde. 1904, vol. lx. p. 123.
[6] Karnitsky: Wratschebnaja Geseta. 1903, nos. 26 and 27. Abstract in Jahrb. f. Kinderheilkunde. 1904, vol. lix, p. 513.

(*To be continued.*)

Reports of Societies.

AMERICAN DERMATOLOGICAL ASSOCIATION.

TWENTY-EIGHTH ANNUAL MEETING, HELD AT NIAGARA FALLS, N. Y., JUNE 2, 3, 1904.

(Concluded from No. 23, page 633.)

EXHIBITION OF LANTERN SLIDES ILLUSTRATING CERTAIN HISTOLOGICAL FEATURES OF SKIN DISEASES.

DR. JOHN A. FORDYCE of New York.

SECOND DAY, FRIDAY, JUNE 3.

GENERAL DISCUSSION: AFFECTIONS OF THE MUCOUS MEMBRANES IN RELATION TO SKIN DISEASES.

DRS. JOHN A. FORDYCE of New York City and MARTIN F. ENGMAN of St. Louis.

DR. FORDYCE, in his paper, stated that our knowledge of mucous membrane affections which were associated with skin diseases, aside from certain observations on the mucous membrane of the urethra and vagina, had been chiefly obtained from a study of the lesions which were met with in the mouth, nose and upper air passages. Clinical observation, confirmed by autopsies in certain cases, had taught us that the mucous membrane of the gastro-intestinal canal, as well as that of the upper air passages, might be implicated at the same time, before, or after the cutaneous affection.

Because of their abundant vessel and nerve supply, the mucous membranes were prone to first reflect the

action of the poison of the acute exanthemata, or any other toxic agent in the general blood-stream which acted on the neuro-vascular apparatus or the vessel walls. Furthermore, on account of anatomical and vascular differences, the clinical course and symptomatology of mucous membrane affections might differ in a marked degree from similar skin eruptions.

As regarded the diagnosis of mucous membrane lesions in general, the usual rules which applied to purely cutaneous ones, often failed. There was less color contrast on account of the more translucent nature of the epidermic covering; vesicles, bullæ and pustules did not long exist as such; papular lesions were less sharply defined and more easily eroded; infiltrations readily ulcerated and became infected, and squamous types underwent modification by reason of the moisture of the epithelial cells. We might have to confirm our belief in the existence of a certain disease of these structures by the coincidence of the skin eruption, or by a process of exclusion. For example, few would care to diagnose lichen planus or lupus erythematosus of the mouth independent of the existence of the suspected disease on the skin.

The author then discussed, in turn, lupus erythematosus, lichen planus, leucokeratosis, psoriasis, precancerous keratosis, lupus and syphilitic lesions of the mucous membranes.

Dr. Martin F. Engman, in continuing the discussion, divided the affections included in his paper into 1. Those diseases which affected both the mucous membranes and the skin by direct local auto-inoculation from one to the other. 2. Those diseases which affected both the skin and the mucous membrane through general systemic involvement. (*a*) The action upon the skin and mucous membranes of toxins metabolically produced in the system, with or without the aid of micro-organisms or other known agents; (*b*) The formation of emboli of micro-organisms in the skin and mucous membranes.

Under the first division, the author discussed eczematoid dermatitis; bullous impetigo; secondary invasion of the buccal mucous membrane from the skin, and the skin from the mouth; condyloma or acanthomata, which he said were frequently associated with seborrhoic dermatitis of the mucous membrane, though they were probably due to a special infection; fungi; parasites and various toxins. Under the second division he discussed urticaria, pemphigus, lupus erythematosus, lichen planus, pigmentary diseases, erythema multiform, impetigo herpetiformis, lupus, xanthoma and infections by gonococci.

Dr James C. White of Boston said that although Drs. Fordyce and Engman had mentioned some thirty or forty dermatoses which were reflected either primarily or secondarily on the mucous membranes, it was strange that such conditions were not still more common. In certain cutaneous affections the skin was involved universally and to an intense degree, and yet the mucous membranes remained absolutely free from any sympathetic manifestations whatever. The speaker referred to the frequency with which erysipelas had its origin in the nasal cavity, and was due to the habit of forcibly removing scales and crusts from the mucous membrane of the nose. He also mentioned a form of acute inflammation of the lower lip and extending a short distance into the cavity of the mouth, which was not infrequently observed in the late summer and autumn, and was the result of eating corn off the cob.

Dr. Hyde said the occurrence of an erysipelatoid flush extending to the face as the result of picking the nose was quite common, but that it was the cause of true erysipelas he strongly doubted. He had never seen it produce typical erysipelas, but rather a pseudo-erysipelas.

Dr. Gilcrist said that an epithelioma not infrequently developed at the site of syphilitic plaques on the tongue, and surgeons were inclined to blame the dermatologist for not recognizing this condition earlier.

Dr. Henry G. Anthony of Chicago cited a case which illustrated the fact that clinically it was sometimes difficult to determine when epitheliomatous changes had commenced in these plaques.

Dr. Frank H. Montgomery called attention to the fact that in a large percentage of cases, lupus vulgaris began in the nasal mucous membrane.

Dr. William T. Corlett said that in certain cases of eczema of the upper and lower lips he attributed the eruption to the habit of sucking or moistening the lips.

Dr. Shepherd emphasized the importance of a radical operation in epithelioma of the tongue.

Dr. Pusey in discussing leukoplakia of the tongue, stated that he was entirely in accord with what had been said regarding the dangerous character of these lesions. The number of epitheliomata that developed in them was very large.

LICHEN PLANUS VERRUCOSUS.

Dr. Augustus Ravogli of Cincinnati: The author stated that it was only an anomaly of the lesions of lichen which, on account of an increased infiltration, developed to such an extent and so unevenly as to deserve the name of lichen verrucosis. The lesions usually appeared in those parts where a stasis was caused by difficulty of circulation. In the lesions of lichen hypertrophicus the blood vessels were primarily affected, and not only an infiltration had taken place, but also an interstititial hemorrhage. The collagenous tissues had greatly increased and the elastic elements similarly decreased. The hypertrophic condition of the epidermis was the result of the hypertrophy of the derma. As to treatment, local applications were necessary. Formaldehyd had produced satisfactory results.

Dr. Zeisler said he had practically given up the use of arsenic in the treatment of lichen planus, and had come to look upon this old time remedy as very unreliable in this affection. He had found the protoiodide of mercury much more reliable. In at least half a dozen cases, the x-rays had given him excellent results in the hypertrophic form of the disease.

Dr. Hyde agreed with Dr. Zeisler that in the routine treatment of lichen planus, the internal use of mercury was preferable to arsenic, and that it should be combined with the local use of the x-rays.

Dr. Engman thought the hypertrophic form of lichen planus was not rare, particularly in women with poor circulation. Histologically, all types of the disease were vascular in character. The speaker said he favored the internal use of mercury, and in order to avoid local irritation he laid special stress upon the use of an anti-pruritic salve.

Dr. Stelwagon said he still employed arsenic with much confidence in the treatment of lichen planus. In many of the chronic cases, the disease was markedly improved and its extension limited by heroic doses of the drug.

AN INQUIRY INTO THE ETIOLOGY AND NATURE OF TOXIC ERYTHEMATA.

Dr. J. F. Schamberg of Philadelphia: The writer said that the cutaneous manifestations of the erythema group of skin diseases were so protean and varied that a satisfactory classification appeared well nigh impossible in the present state of our knowledge. If the

cutaneous features of this group were varied, what must be said of the almost infinite variety of causes that gave rise to them. A classification based upon etiological considerations would appear to be beset with even greater difficulties. It would seem possible, however, to correlate certain facts in connection with the causation of these phenomena which might tend towards generalization and simplification rather than analysis and differentiation. The following classification of causes was tentatively suggested and discussed: 1. Bacterial and protozoic toxins. 2. Ptomaines. 3. Leucomaines and their metabolic poisons. 4. Drugs.

DR. ANDREW P. BIDDLE of Detroit referred to the frequency with which eruptions followed the injection of diphtheritic antitoxin, and stated that efforts made to ascertain the cause of these eruptions had thus far proven fruitless.

DR. RAVOGLI called attention to the importance of the vasomotor nerves as a possible factor in the production of toxic erythemata.

The following officers were elected for the ensuing year: President, Dr. William T. Corlett of Cleveland; vice-president, Dr. Frank H. Montgomery of Chicago; secretary and treasurer, Dr. Charles J. White of Boston; member of council, Dr. John A. Fordyce of New York. It was decided to hold the next meeting of the Association in New York City, Dec. 28, 29 and 30, 1905.

Recent Literature.

A Manual of Fever Nursing. By REYNOLD WEBB WILCOX, A.M., M.D., LL.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

Dr. Wilcox offers in this volume the substance of lectures on the subject of fever nursing delivered to the nurses of St. Mark's Hospital, New York, in 1903–4. The book contains much more than its title implies, inasmuch as it discusses the symptomatology and general clinical course of various diseases, as well as the methods of caring for these conditions. This is wholly in accord with the modern method of lecturing to nurses, which have come to be rather dissertations on medical topics than details of care of the patients. It is, therefore, merely to be regretted that Dr. Wilcox has not extended the title of his volume to signify more accurately what the text as a matter of fact contains. The book is certainly of value, and may be read with much profit by nurses and elementary students generally.

How to Cook for the Sick and Convalescent. Arranged for the Physician, Trained Nurse and Home Use. By HELEN V. SACHSE. Second edition, revised and enlarged. Philadelphia: J. B. Lippincott Company. 1904.

Practical Dietetics with Reference to Diet in Disease. By ALIDA FRANCES PATTEE. Second edition, revised and enlarged. New York: 1904.

These two small volumes have a somewhat similar aim. Each has reached a second edition. In the first volume some seventy recipes have been added to those contained in the first edition, and the attempt is made to place the preparation of food on as exact a basis as is the prescription of medicine. The classification of recipes for ready reference is placed at the beginning of the book and is to be recommended. The remainder of the volume is taken up with directions as to the cooking of food.

The second volume, somewhat unfortunately bound so far as appearance is concerned, is a book very like the one to which we have just alluded, in its general make-up. In addition, however, to the details of recipes, a section is devoted to diet in disease wherein definite conditions are taken up with the proper dietary prescriptions for each. This should prove useful, particularly to the nurse.

The tendency to devote more attention than hitherto to diet as a means of treatment is certainly worthy of encouragement. Such volumes as the foregoing help toward that end.

The Urine and Clinical Chemistry of the Gastric Contents, the Common Poisons, and Milk. By J. W. HOLLAND, M.D., Professor of Medical Chemistry and Toxicology, Jefferson Medical College, Philadelphia. Seventh edition, revised and enlarged. Philadelphia: P. Blakiston's Son & Co. 1904.

This is merely a laboratory manual consisting of 172 pages. A variety of subjects is touched upon, but the greater part of the book is devoted to the urine. The subject matter is, however, so brief that it cannot be considered more than a guide to laboratory work. It is probable that the book is found most useful in the classroom of the author.

A Textbook of Quantitative Chemical Analysis. By J. C. OLSEN, A.M., Ph.D., Professor of Analytical Chemistry in the Polytechnic Institute of Brooklyn. Formerly Fellow of the Johns Hopkins University. New York City: D. Van Nostrand & Co. 1904.

This is a comprehensive treatise on quantitative chemical analysis by gravimetric, electrolytic, volumetric, and gasometric methods. The book contains seventy-two laboratory exercises giving the analysis of pure salts, alloys, mineral and technical products.

The author has prepared the work primarily for the use of his students and it has been admirably done. The practical exercises are well prepared, and the text is clearly written and remarkably free from typographical errors. Obsolete and new methods, which have not come into general use, have been omitted. The chapter on stoichiometry is especially good and it will serve to aid those who find it difficult to solve the arithmetical problems which are consequent upon quantitative analysis.

There is no doubt of the value of the work as a textbook, and we take pleasure in recommending it to the professional chemist and the student as a work of reference.

Beri-Beri: Its Symptoms and Symptomatic Treatment. By Percy Netterville Gerrard, M.D. 8vo. pp. x, 95. With seven diagrams. London: J. & A. Churchill. 1904.

Beri-Beri: Its Symptoms and Symptomatic Treatment; Being Extracts from "An Essay on Beri-Beri." By Percy Netterville Gerrard, M.D. 12mo. pp. viii, 53. London: J. & A. Churchill. 1904.

The author of the above essay was formerly surgeon to the district gaol in Kwala Lumpor in the Federated Malay States, and there had wide experience with this "pest *par excellence* of the Malay Archipelago and peninsula," tabulating for study in this little book two hundred and thirty-seven cases. After a brief account of the cardinal symptoms of the disease, the writer gives a vivid description of the various types; wet, mixed, dry, rudimentary, acute, pernicious and spasmodic forms. The pernicious form may prove fatal in a few hours, and the disease in every form is a disease of usually unpleasant surprises. The rudimentary forms may get well for a time, but, unless the victims remove from the country where beri-beri is endemic, they have successive attacks, which may become acute. Strychnine and mercury have proved prejudicial in the treatment. The author believes the disease to be microbic in origin and submits some suggestive and interesting observations of his own upon certain bacteria found in some cases. The details of treatment are clear and full. The work will prove of much value to all who have to deal with tropical diseases. The smaller work is simply a portion of the larger, omitting various tables and theoretical discussions, but retaining the clinical portion.

Text-book of Nervous Diseases and Psychiatry. By Charles L. Dana, A.M., M.D. Sixth revised and enlarged edition. 8vo. pp. xii, 690. With 244 illustrations and three plates in black and colors. New York: William Wood & Co. 1904.

With the exception of a few new illustrations and some brief additions and omissions, the sections upon nervous diseases show little change in this new edition. The change in the title indicates the addition of about seventy pages upon diseases of the mind, which embraces the chapters on general paralysis and certain neurasthenic states which were already treated of in the previous editions. In these few pages the author has succeeded in giving a description of the various forms of mental disease which is superior to many of the more ponderous treatises. After a consideration of psychology and the general etiology, pathology, symptomatology and treatment, he gives the first place to a consideration of the minor psychoses under the heading of phrenasthenia, wherein are included the various morbid fears and obsessions. The emphasis placed upon these important mental states and their distinction from the more pronounced forms of mental disease is one of the striking merits of this section. The following chapters treat of dementia precox, melancholia and mania, paranoia, confusional insanity, general paresis, and the psychoses of senility. In these the writer follows Kraepelin in the main, but not in the slavish manner so often noted, and in more than one instance he dissents wisely from Kraepelin's doctrines, notably in the chapter on melancholia. The work has long held the rank of the best of the shorter treatises on nervous diseases; it can add the further title of the best brief treatise on mental disease.

Case Teaching in Surgery. By Herbert L. Burrell, M.D., and John Bapst Blake, M.D. Philadelphia: P. Blakiston's Son & Co. 1904.

The case method of teaching was first advocated in this Journal in January, 1900. Since that time case-books on neurology and medicine have been published, and now a book containing seventy-five selected cases in surgery appears. The compilers point out many advantages of the method, such as the boundless amount of material it affords for study, the variations of common diseases it may illustrate, the unique cases it may present, and the insight which it gives the instructor into the students' defects and abilities. Emphasis is laid on the importance of the method in requiring the students to be active and productive rather than passive and receptive. Dr. Blake contributes an explanatory note telling how he uses the method.

The records of cases are stated briefly. They occupy only the left-hand pages; the right-hand pages are left blank for student notes on diagnosis, prognosis and treatment. Still other matters need to be settled in Case 13, page 34: "Male; 59; married; laborer." "Vaginal examination negative save for torn perineum."

The Essentials of Chemical Physiology. By W. D. Halliburton, M.D., F.R.S., Fellow of the Royal College of Physicians; Professor of Physiology in King's College, London; Author of "Textbook of Chemical Physiology and Pathology." Fifth edition. London and New York: Longmans, Green & Co. 1904.

The fact that this little book has reached its fifth edition is evidence of its popularity. It is merely what its name implies, — the essentials of chemical physiology, and should not be mistaken for the more comprehensive work on this and allied subjects by the same author. This edition is remarkable for numerous changes and additions which materially improve the book. We regret, however, that certain subjects have not been given a place, — for example, the directions for the quantitative determination of the lactose in milk. In most respects the work is up to date, and undoubtedly it will continue to be received with favor by teachers and students.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, DECEMBER 15, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

THE MICROCOCCUS RHEUMATICUS.

DR. JAMES M. BEATTIE, working in the pathological laboratory of Edinburgh University, has recently published a statement in the *British Medical Journal* bearing on the subject of the etiology of rheumatism. His work is confirmatory of a communication published in January, 1903, in the same journal by Beaton and Walker, who described the microscopic and cultural peculiarities of an organism which they named Micrococcus rheumaticus. Dr. Beattie has repeated and in great measure confirmed their work. He worked with organisms, one of which he obtained from the synovial membrane of a girl having acute rheumatism and recovered from the vegetations of the endocarditis occurring in a rabbit. The other culture was borrowed from another investigator, and the characters of the two are shown to be essentially identical. The details of the microscopic and staining characters may be obtained from the original article. It is our purpose merely to draw attention to the fact that work promising much is being done on the question of the etiology of the obscure class of affections going under the general heading of rheumatism. Dr. Beattie is inclined to think that the organism with which he has been working is absolutely distinct from the streptococci and that pus is not produced by it. It has been maintained that this micrococcus is not the cause of acute rheumatism, but presumably is merely a streptococcus causing the terminal affection. This Dr. Beattie thinks he has shown not to be the case, and that there is good reason to think that the organism is specific in the causation of acute rheumatism. His own statements on the fact are summarized in the following paragraph:

"Even if we admit that the organism can produce suppuration, though I feel considerable doubt on this point, yet ordinarily it does not give rise to pus, but causes in rabbits non-suppurative polyarthritis, endocarditis, etc. These conditions have not been produced by inoculation of what we ordinarily call streptococci. We do not claim that because this organism produces endocarditis therefore it is the causal organism of morbus cordis. What, however, we do claim, is that it can be isolated from cases of typical acute rheumatism; that it can be grown outside the body, there showing characters which are in some respects specific; that in inoculation in animals it produces a combination of lesions which are similar to those of acute rheumatism in the human subject, sometimes specially affecting the joints, sometimes specially the heart, sometimes producing chorea, sometimes producing a combination of these conditions, and that from these lesions the organism can be recovered in pure culture."

We are glad to call attention to this work, indicating as it does a further step in the elucidation of the rheumatoid affections which hitherto have been so baffling in their etiology. Naturally, work of such a character needs repeated confirmation from various laboratories before it may be finally accepted.

THE PROTOZOON OF SCARLET FEVER.

INSPIRED by Mallory's work, published in 1903, Dr. Charles W. Duval has been carrying out investigations on the protozoön of scarlet fever, publishing his preliminary report in the *University of Pennsylvania Medical Bulletin* for November. It will be remembered that Mallory described certain protozoön-like bodies in the skin of patients dying from scarlet fever, and in the course of his description of the subject mentioned the fact that certain forms occurred in the lymph vessels and spaces of the corium beneath the epidermis as well as between the epidermal cells. Dr. Duval's experiment was based on the fact that if these bodies which lie free in the intercellular lymph spaces were stages in the life cycle of a protozoön they might be drawn into the contents of a vesicle artificially produced.

An opportunity was offered, through the Board of Health and Charities of Philadelphia and through the Bureau of Health, to make a study of scarlet fever occurring at the Municipal Hospital. Cells were studied found in serum which had been taken from vesicles rapidly produced, and in all, eighteen cases were the

subject of study. As a result, the protozoön-like bodies were found in five cases and during the height of the eruption. These bodies, in the majority of instances, were identical with those described by Mallory in the skin, varying in size from two to four microns. They presented forms of definite structure and distinct staining reactions. In three cases the spherical segment forms were found. In one of the cases, which subsequently died on the fifth day of the disease, histological study of the skin showed foci of protozoa completely corresponding with those found in the serum before death. Serum of normal individuals, studied with reference to the existence of protozoa, gave negative results, as well as the contents of vesicles artificially produced on chemically injured skin, nor were the bodies in serum from artificial vesicles produced in other acute exanthemata.

The technique of producing the vesicles was through the use of strong ammonia, which raises a blister in from three to ten minutes without undue pain or discomfort. By taking a piece of sterile absorbent cotton about 2 cm. in diameter, saturated with the reagent and applied closely to the skin selected, it is possible to produce with ease the experimental vesicles. In from two to five minutes the cotton is removed and sterile vaseline is applied. The vaseline is allowed to remain until the vesicle is fully formed, a period of five or six minutes. Vaseline is then removed by xylol, and the contents of the vesicle may then be withdrawn. The serum is clear and free from red blood cells and leucocytes. This Dr. Duval regards as more satisfactory than the ordinary histological examination of the skin, inasmuch as the protozoa are better preserved and undistorted.

It is announced that a full report of this work will appear in the *Archiv fur Pathologische Anatomie*. It will be awaited with much interest, and is certainly of significance in relation to a valuable, but so far as we are aware, hitherto unconfirmed discovery.

FLIES AS DISSEMINATORS OF TUBERCULOSIS.

In another part of this issue we publish a significant piece of work by Dr. F. T. Lord on the subject of the possibility of the transmission of tuberculosis through the agency of flies. Dr. Lord does not claim for this work absolutely complete originality, although the idea was suggested to him before he had seen any other investigations upon the subject. Previous studies of the bacteria-carrying power of flies have been made, but none of them, we believe, have gone so far as Dr. Lord's in demonstrating the possible menace which these widely prevalent insects may be in relation to the general health of the community. That Dr. Lord's results are of much significance there can be no question. Just how far, however, the facts he has demonstrated may be significant in the dissemination of the disease remains to be worked out more completely in the future. This no doubt may be accomplished now that our attention is directed in so forcible a fashion to the fact that flies may be and, in fact, are carriers of the infection, provided they be given the opportunity to ingest the bacteria.

THE BRIGHAM HOSPITAL FUND.

The fund left by the late Peter B. Brigham for "a hospital in the city of Boston for the care of sick persons in indigent circumstances, within the County of Suffolk," which has accumulated since the testator's death and which is now supposed to amount to about five million dollars, is in the hands of an extremely competent and judicious board of trustees. At present the ultimate disposition and practical usefulness of this fund is tied up and restrained by legal processes brought in the courts in the name of a disappointed and distant relative. Two decisions have been given against the claims of this plaintiff, one in the Circuit Court and another still more recently in the Court of Appeals. As we understand it, under certain contingencies, an appeal may be taken to the United States Supreme Court; or under certain other contingencies suits may be brought against the trustees in the name of certain other distant relatives. The realization of the fruition of this fund by any sick persons in indigent circumstances may still be remote. In the meantime, before their absolute control of the fund is assured, there seems to be a disposition to instruct the trustees in the daily press as to the intentions of the testator now long dead and as to the proper discharge of their functions and responsibilities.

If these trustees need such instruction, which may be doubted, why not wait until the courts have finally placed them in a position where they are free to act, and where any class of sick persons in indigent circumstances can be benefited by Mr. Peter B. Brigham's good intention in any way? In regard to the report of an unholy alliance between the trustees of the Brigham

Fund and the Harvard Medical School, we are permitted to publish a report to the Hospital Corporation and a letter from the trustees to a committee of the Corporation of Harvard College, which show what the present situation actually is. These will be found on another page of this issue.

MEDICAL NOTES.

SCHOOLHOUSES — SANITARY AND UNSANITARY. — The last bulletin of the Vermont State Board of Health contains a discussion of this subject which shows that the doctors in the small towns and rural districts of that state are intelligently awake to its importance.

A MEMBER OF THE AUXILIARY CONGRESSIONAL COMMITTEE. — Dr. R. H. Fitz has accepted an appointment by the American Medical Association as a member of the National Auxiliary Congressional Committee of the American Medical Association.

THE CLEVELAND MEDICAL LIBRARY ASSOCIATION. — At the annual meeting of the Cleveland Medical Library Association, Dec. 10 last, Dr. George Ben Johnston of Richmond, Va., read a paper upon "The Medical Men Contributed to the United States by the State of Virginia," a subject upon which he is particularly fitted to speak.

RETIREMENT OF PROFESSOR NAUNYN. — It is announced that Professor Naunyn has resigned his position as professor of internal medicine at Strasburg after a service approaching forty years. It is desired that his students send their names and addresses to Zschocke, Lessingstrasse 31, Strasburg, i. E., in order that an appropriate address may be presented him signed by his former pupils.

INTERNATIONAL MILITARY MEDICAL STATISTICS. — As a supplement to the annual report of the Surgeon-General of the Army for the year 1904, a supplementary pamphlet has been issued dealing with international military medical statistics for 1903. The tables used are those agreed upon at the meeting of the International Commission for the Unification of the Medical Statistics of Armies held at Budapest in 1894, and later modified somewhat. These tables, ten in all, supply an enormous number of facts regarding the army, its diseases and various matters relating to its efficiency.

ROCKEFELLER INSTITUTE. — The Rockefeller Research Laboratory has so far progressed that its corner stone was laid last week. This foundation, it may be remembered, began with an initial endowment of $200,000, which has since been increased to upwards of a million dollars and the likelihood of more to follow as its need is demonstrated. The ceremony consisted in the laying of the corner stone by Dr. Simon Flexner, Chairman of the Governing Board of the Institution, assisted by Drs. T. M. Pruden, L. Emmett Holt and C. A. Herter. The public ceremony of dedication will be held when the building is completed. The location of this building is on a tract of land along the East River in New York extending from 65th to 68th Street and back from the river to Avenue A.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Dec. 14, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 66, scarlatina 26, typhoid fever 11, measles 6, small pox 0.

BEQUEST TO SHARON SANATORIUM. — By the will of the late Col. William A. Tower of Lexington, the Sharon Sanatorium receives $1,000.

A CENTENARIAN. — It is announced that Mrs. Abigail C. Hunt has recently died in Fairfax, Vt., at the age of one hundred and one years and seven months.

APPOINTMENT OF SURGEON-GENERAL OF THE STATE OF MASSACHUSETTS. — Governor-elect Douglas has appointed Dr. William H. Devine as surgeon-general on his military staff.

NEW FLOATING HOSPITAL. — Plans for the new floating hospital are not yet completed, but sufficient has been done to show in general the dimensions of the new boat. It will be of steel, 170 feet in length, with a beam of 46 feet. The vessel will have five decks arranged for the details of the work, the upper decks naturally being devoted to the patients. It is expected that on the awning deck there will be space for the care of two hundred out-patients. The general arrangement will insure much more complete hospital care than was possible on the old boat.

NEW YORK.

FELLOWSHIP IN PHYSICAL RESEARCH. — At a meeting of the trustees of Columbia University held Dec. 5, it was announced that Edward D. Adams had made a gift of $50,000 for the foundation of a fellowship in physical research in memory of his son, Ernest K. Adams. The gift is

accompanied by a valuable collection of scientific apparatus to be allotted to the physical, electrical and psychological laboratories of the university.

New York Academy of Medicine. — Drs. C. L. Dana and T. Mitchell Prudden are the candidates for president and vice-president, respectively, of the New York Academy of Medicine voted on Dec. 15.

Large Damages. — On Dec. 8 Clarence E. Vreeland of Newark was awarded $35,000 damages by a Hackensack (New Jersey) jury in a suit brought against the company owning the trolley line between Hackensack and Newark. In an accident on the cars of the company Mr. Vreeland received spinal injuries which rendered him a cripple for life. This is said to be the largest amount of damages ever awarded in a trolley car accident.

Temporary Pavilion at Bellevue Hospital. — At a meeting of the Board of Estimate and Apportionment held Dec. 9, an emergency resolution was passed for the expenditure of $15,000 for the erection of a temporary pavilion on the grounds of Bellevue Hospital. This action was taken in consequence of the representations of Dr. Brannan, president of the board of trustees of Bellevue and Allied Hospitals, who reported that all the hospitals under the direction of the board were already crowded to their capacities, and that some increased accommodation for the exigencies of the winter was absolutely necessary. At the same meeting an appropriation of $50,000 for the expenditures of the Health and Police Departments in connection with the "General Slocum" disaster last summer was also passed.

Mortality in November. — It is very seldom that the mortality in the city in the month of November exceeds that of October, but it is to be noted that this year the October mortality was exceptionally low. The increase was principally in the diseases of the respiratory organs and kidneys. It will be seen, however, that the death-rate was lower than in November of last year. The mortality reported represented an annual death-rate of 16.62, as against 15.81 in the month of October, and 17.26 in November, 1903. Among the diseases which showed an increased fatality were the following: The weekly average of deaths from diphtheria and croup increased from 26.75 in October to 31.5 in November; the weekly average from scarlet fever, from 7.25 to 10.25; from measles, from 4.75 to 6; from pneumonia, from 68.5 to 124.25; from broncho-pneumonia, from 59 to 76; from acute bronchitis, from 22.5 to 29; from pulmonary tuberculosis, from 147.5 to 154.5; from cancer, from 48.75 to 60.25; from Bright's disease and nephritis, from 98.75 to 120; and from organic heart disease, from 87.75 to 96.25. During the month of October no deaths were reported from influenza. In November the weekly average of deaths from this disease was 4.25. Among the diseases in which there was a decreased mortality were the following: The weekly average of deaths from epidemic cerebrospinal meningitis declined from 12.75 to 10.75; from typhoid fever, from 21.25 to 17.5; from diarrheal diseases, from 92 to 43.5; and from diarrheals under two years of age, from 84.75 to 35.5. The corrected death-rate for the month, excluding non-residents and infants under one week old, was 15.81.

Miscellany.

THE BRIGHAM HOSPITAL FUND.

REPORT TO CORPORATION OF HOSPITAL.

Boston, Oct. 27, 1902.

The committee appointed at the meeting held May 22, 1902, to consider a location for the hospital to be built by the Corporation, present the following report:

The committee have taken under consideration as many as forty proposed locations within the limits of the city of Boston. The most desirable section of the city, within the limits of which the hospital site should be, is, in the opinion of your committee, that comprising Roxbury, Longwood and Jamaica Plain. Part of this district is close to the center of the city's population and at the same time land values are comparatively low. It is convenient of access for both patients and doctors, and is in the general direction of the city's growth. In addition, neither the City Hospital nor the Massachusetts General Hospital are near enough to this section to give it adequate service. Of the locations offered in this vicinity your committee have examined all or nearly all personally. Your committee have finally selected for recommendation to the full board, a location on what is known as the Francis lot, now owned by Harvard College, at the corner of Huntington Avenue and Francis Street in Longwood, close to Roxbury.

The offer made by the college gives the hospital the choice of any part of about fifteen acres which will adjoin the new Harvard Medical School. The price named is cost to the college, about sixty cents per square foot, but it has been the desire of the college that conveyance of the land be coupled with an agreement or alliance between the hospital and the medical school whose new buildings will be located on another part of the same lot.

Your committee have given much thought to this matter of an alliance, and have sought interviews and made inquiries wherever there appeared a chance of assistance. Particularly important was a meeting held with two representatives from Harvard College, Dr. Henry P. Walcott and Dr. Arthur T. Cabot, and also three representatives of the Harvard Medical School, Dr. J. C. Warren, Dr. Henry P. Bowditch and Dr. William L. Richardson. Dr. Walcott opened the conference by stating the reasons in favor of an alliance

between your board and Harvard College. This statement, in the opinion of your committee, was a very able and convincing one. It was followed by a general debate, in which all the gentlemen in the room took part. After very full and free interchange of views on both sides, it resulted in your committee asking them to submit, in writing, such a proposition as they were prepared to make, for the sale of land and such other views as they wished to present to us.

On a subsequent day your committee met in conference with the resident physician of the Boston City Hospital, Dr. G. H. M. Rowe. His advice was asked in regard to the general subject of location for the proposed hospital, and also in regard to the management of the hospital, so far as the proposed alliance with Harvard College might affect it. Dr. Rowe approved the location on the Francis lot, but was very frank in giving his decided opinion that the hospital should be kept entirely independent of any agreement with organizations for medical instruction. On the other hand, he was equally frank and decided that an alliance with the Harvard Medical School, which left the hospital entirely independent in its conduct of its own affairs, was most desirable.

On June 27, 1902, the proposition from Harvard College, referred to above, was received from a committee of that corporation addressed to Mr. Cochrane. The communication accompanies and is made a part of this report.

After most careful deliberation, the conclusion reached is that your committee do not recommend any purchase of land where an agreement or an alliance is in any sense incident thereto. The best interest of the hospital, and indeed the duty of the members of this corporation in charge of this trust, will be, in the opinion of your committee, to retain absolute independence.

Your committee recognize, however, the advantage of a location next a medical school, and, further, that many times joint action by hospital and school is desirable for both.

Accordingly, your committee recommend an offer to Harvard College subject, of course, to a favorable result of the pending suit of which the board had familiar knowledge, to purchase about ten acres of the Francis lot at the price named, but without restriction or accompanying agreement or alliance. At the same time with transmitting this offer, if the board shall approve it, it is recommended that the president state the position which this board takes with reference to the desired alliance. A draft of such a letter containing both the offer and the statement, is appended to this report.

The conclusion reached as to the size of the lot which the hospital may require, namely ten acres, is based not upon what may probably be necessary for use, but rather upon the desire of your committee that the corporation should have, both for present plans and for further possible extensions, an amount of space which shall be sufficient beyond peradventure.

ALEXANDER COCHRANE, HENRY S. HOWE,
EDMUND D. CODMAN.

LETTER TO CORPORATION OF HARVARD COLLEGE.

BOSTON, Nov. 1902.

To Dr. Henry P. Walcott, Arthur T. Cabot and Charles F. Adams, 2d, Esq., *Committee of the Corporation of Harvard College:*

Dear Sirs, — The members of the corporation of the Peter Bent Brigham Hospital have reached a decision on the proposition contained in your communication of June 27, 1902, and I am now authorized to reply as follows:

In the event that the trust funds in our hands shall not be substantially reduced by the claims asserted against them by the heirs of Peter B. Brigham and when those claims shall be disposed of by the final adjudication of the courts, we will accept a conveyance of about ten acres of the Francis lot and will pay therefor its cost to Harvard College, with interest at the rate of 4% added. We shall expect the right to take, if we so elect, light, heat and power for any buildings we may erect on the premises supplied to us from your plant at cost to you and the use of your scientific laboratories without charge.

So far as the charitable purposes of this trust shall in our opinion permit, we hereby declare our desire to promote the objects of your medical school by seeking advice from its Faculty, and by giving careful consideration to its nominations in making appointments to our medical staff, and by permitting access for students to the hospital.

Except for the purchase of the land subject to the defeat as above stated of all claims of the Brigham heirs, we do not enter into any agreement or contract in any sense, but we are ready, if you so desire, to spread this letter upon our records.

We are prepared to pay for the land at once upon receiving an agreement from the college to convey the same to us upon a final adjudication of the Courts adverse to the claims of the Brigham heirs or, in the event that those claims shall be established to a substantial extent, that the college will repay to us the money with interest at 4% per annum.

CASUALTIES IN ACTION IN TIBET.

MAJOR WIMBERLEY of the Indian Medical Service reports in the *Indian Medical Gazette* a certain number of casualties occurring in action which passed through his hands while serving with the Tibet mission force during Colonel Younghusband's expedition. The variety of wounds is somewhat curious, owing to the varied nature of the arms in the hands of the Tibetans. The prompt and permanent healing of very serious injuries is also of interest, and this must have been due in a measure to the pure air at high elevations, as well as to skilful treatment and the nature of the bullet wounds. Of the 15 killed, 13 were due to gunshot wounds, 1 each to multiple sword cuts and to fracture of the skull from a stone. Of the 68 wounded, 51 were due to gunshot wounds, 10 to sword cuts, and 7 to stones hurled by the enemy. Several of the gunshot wounds were from large bullets weighing three and four pounds.

From a number of cases reported somewhat in detail, a few are appended:

"A man of the Bengal Sappers and Miners was shot right through the neck at Pahla on May 26 by some small, high-velocity projectile, apparently from a Mauser pistol. So far as could be made out, the bullet must have passed between the pharynx and the vertebral column. A first field dressing was applied on the spot. When removed, only a small scab was found on either side, and the man was discharged to duty about a week later, complaining only of slight stiffness in the neck. This was a case which illustrates the wonderful way in which a modern projectile will pass through vital parts without doing any damage. It also shows how well such wounds do when the first original dressing is let alone. But let me add a note

of experience with regard to these first field dressings. It is this: Throw away all the guttapercha waterproof tissue supplied. The drier such wounds are kept the better."

"A Havildar of the Bengal Sappers and Miners was sitting cooking his food in the Gyantse Post, with his back to a substantial protective traverse made of logs and stones. A large *jingal* bullet weighing four pounds — a "Big William" as it was generally known in Gyantse — passed through the traverse, grazed the inner side of his left forearm and adductor surface of his left thigh, and finally buried itself in the ground just between his legs. The skin showed extensive bruising, and finally a large area on the inside of the thigh sloughed, leaving a large, shallow ulcer."

"A Tibetan interpreter with the British force went into Lhassa contrary to orders one night, on a private enterprise. News was brought in next day that he was lying cut to pieces in a Tibetan house in the city. A cooly with an escort was sent for him and he was brought back to camp in the afternoon. He had been lying in a filthy Tibetan house for over sixteen hours after he had been wounded, covered with dirty blankets, and with his wounds bound up with nondescript Tibetan rags.

"He was found to have received no less than ten sword cuts, most of them very severe, and must have lost pints of blood. Of two long scalp wounds, both grooving the skull deeply, one had divided the left temporal, which started spouting when the wounds were being cleaned, and had to be tied; another cut went clean through the left radial, another opened the right wrist joint, and so on. And yet a week later, nearly all the wounds had healed by first intention, and he was walking about, quite cheerful."

COMMEMORATIVE NOTES ON SAMUEL W. ABBOTT, M.D.

Mr. Editor: In accordance with a vote of this board I send you herewith for publication a copy of the commemorative notice of its late secretary, Dr. S. W. Abbott, which was read at the last board meeting and will appear in the annual report.

Respectfully yours,
John W. Bartol,
Acting Secretary.

Samuel Warren Abbott, M.D., was appointed Health Officer of the State Board of Health, Lunacy and Charity on Dec. 2, 1882. Upon the reestablishment of the Board of Health in 1886 he was elected secretary and executive officer of the board. Throughout all these years and until his death on Oct. 22 he was the able, devoted and untiring officer of a service to which he gave with enthusiasm the best years of his life. His capacities in the preparation and discussion of vital statistics were everywhere acknowledged by the masters of the subject, and there was no department of public hygiene which had so great an attraction for him; but he neglected none of the essentials in the administration of the laws for the protection and promotion of the public health.

He gave his early years to the perilous service of his country in time of war, and spent his later years in an equally determined struggle for the safety of the lives of his fellow men.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 3, 1904.

Cities.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Meningitis.
New York	3,908,644	1,350	288	20.37	20.22	2.22	1.25	.96
Chicago	2,021,086	450	98	23.77	14.22	2.89	.66	.22
Philadelphia	1,407,966	426	98	23.47	16.19	3.52	1.87	—
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	543,229	167	38	25.57	17.96	1.19	1.19	.60
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	409,845	—	—	—	—	—	—	—
Pittsburg	362,403	—	—	—	—	—	—	—
Cincinnati	338,277	—	—	—	—	—	—	—
Milwaukee	325,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	51	17	13.73	15.69	5.88	—	—
Boston	617,950	230	59	23.91	17.82	1.74	3.48	.87
Worcester	186,925	93	9	10.71	10.71	—	—	7.14
Fall River	119,349	39	15	30.76	17.75	—	—	—
Lowell	104,402	30	10	20.00	10.00	10.00	3.33	—
Cambridge	100,998	14	5	28.56	28.56	7.14	—	—
Lynn	73,875	25	4	16.00	—	4.00	4.00	—
Lawrence	72,348	29	9	17.24	10.34	3.44	—	—
Springfield	72,020	—	—	—	—	—	—	—
Somerville	70,413	18	6	16.67	38.88	—	11.11	—
New Bedford	68,863	24	8	20.83	29.16	4.16	4.16	—
Holyoke	50,588	12	3	16.67	8.33	—	—	—
Brockton	46,001	8	0	12.50	—	—	—	—
Newton	39,310	9	1	11.11	22.22	—	—	—
Haverhill	39,061	8	5	37.50	12.50	—	12.50	—
Malden	37,206	8	1	25.00	12.50	—	—	—
Salem	37,188	15	1	6.67	—	—	—	—
Chelsea	36,499	14	3	14.28	21.42	—	—	—
Fitchburg	36,335	10	1	10.00	10.00	—	—	—
Taunton	34,577	10	2	30.00	10.00	—	—	—
Everett	30,309	8	3	25.00	—	—	12.50	12.50
North Adams	30,301	4	2	—	25.00	—	—	—
Quincy	26,798	4	—	—	25.00	—	—	—
Gloucester	26,131	13	4	15.40	—	—	—	7.70
Waltham	25,797	7	—	42.90	14.30	—	—	—
Brookline	23,576	7	—	—	—	—	—	—
Pittsfield	22,570	5	—	40.00	40.00	—	—	—
Medford	21,956	6	2	16.67	33.33	16.67	—	—
Chicopee	21,692	6	3	66.67	—	16.67	16.67	—
Northampton	20,814	7	1	28.60	—	—	14.30	—
Beverly	15,807	7	1	28.60	14.30	—	14.30	—
Leominster	15,711	2	—	—	—	—	—	—
Clinton	15,694	3	1	—	—	—	—	—
Adams	14,745	—	—	—	—	—	—	—
Attleboro	14,561	1	—	—	—	—	—	—
Hyde Park	14,500	2	1	—	—	—	—	—
Newburyport	14,478	3	0	—	33.33	—	—	—
Woburn	14,315	5	—	—	20.00	—	—	—
Melrose	13,819	7	2	28.60	14.30	—	—	—
Westfield	13,809	4	—	25.00	—	—	—	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	4	0	—	—	—	—	—
Revere	13,609	5	1	20.00	60.00	—	—	—
Framingham	13,974	—	—	—	—	—	—	—
Peabody	13,496	—	—	—	—	—	—	—
Gardner	13,594	3	3	33.33	—	—	—	—
Southbridge	11,716	6	3	100.00	—	33.33	—	—
Watertown	11,575	4	1	—	—	—	—	—
Weymouth	11,350	5	1	—	—	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 3,103; under five years of age, 720; principal infectious diseases (small pox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 657; acute lung diseases 543, consumption 368, scarlet fever 16, whooping cough 10, cerebrospinal meningitis 21, small pox 2, erysipelas 8, puerperal fever 7, measles 12, typhoid fever 48, diarrheal diseases 85, diphtheria and croup 78.

From whooping cough, New York 4, Chicago 3, Philadelphia 1, Boston 1, Fall River 1. From scarlet fever, New York 10, Chicago 3, Boston 2, Taunton 1. From cerebrospinal meningitis, New York 13, Chicago 1, Baltimore 1, Boston 2, Worcester 2, Gloucester 1, Everett 1. From erysipelas, New York 2, Philadelphia 5, Gardner 1. From small pox, Chicago 2.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Nov. 19, the death-rate was 16.6. Deaths reported 4,966; acute diseases of the respiratory organs (London) 175, whooping cough 46, diphtheria 78, measles 143, small pox 5, scarlet fever 54.

The death-rate ranged from 5.01 in Hornsey, to 25.4 in Coventry; London 16.9, West Ham 15.0, Brighton 12.4, Southampton 13.4, Plymouth 20.6, Bristol 15.6, Birmingham 18.3, Leicester 13.3, Nottingham 14.5, Birkenhead 15.9, Liverpool 21.0, Wigan 21.6, Bolton 18.4, Manchester 19.5, Salford 15.3, Halifax 15.0, Bradford 15.9, Leeds 15.9, Sheffield 14.8, Hull 20.5, Newcastle-on-Tyne 22.0, Cardiff 10.9, Rhondda 15.8, South Shields 22.3.

METEOROLOGICAL RECORD.

For the week ending December 3, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. . 27	29.94	26	32	21	80	82	81	N W	N W	2	9	C.	C.	0
M. . 28	30.13	22	28	16	77	56	66	N W	N W	14	12	F.	C.	T.
T. . 29	30.03	32	49	15	62	81	72	S	S W	10	12	O.	O.	T.
W . 30	29.86	46	54	38	82	63	72	S W	W	8	10	O.	C.	.08
T. . 1	29.91	34	38	30	59	45	52	W	S W	14	12	F.	C.	0
F. . 2	30.27	24	32	17	54	44	49	W	N W	8	12	F.	C.	0
S. . 3	30.38	20	24	15	75	71	73	N	N	14	8	O.	C.	0
☞	30.07		37	22			66							.08

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE EIGHT DAYS ENDING NOVEMBER 30, 1904.

CARTER, H. R., surgeon. Relieved from duty at Baltimore, Md. Nov. 28, 1904.

MCINTOSH, W. P., surgeon. Bureau letter of Oct. 24, 1904, granting Surgeon McIntosh leave of absence for twenty-five days from Nov. 8, 1904, amended to read eighteen days. Nov. 30, 1904.

GRUBBS, S. B., passed assistant surgeon. Granted leave of absence for twenty-one days from Dec. 18. Nov. 30, 1904.

COLLINS, G. L., assistant surgeon. Granted leave of absence for five days from Nov. 16, 1904, under paragraph 191 of the regulations.

HUNTER, W. R., acting assistant surgeon. Granted leave of absence for fourteen days from Nov. 25. Nov. 26, 1904.

SAFFORD, M. V., acting assistant surgeon. Granted leave of absence for five days from Nov. 25, 1904, under paragraph 210 of the regulations.

TAPPAN, J. W., acting assistant surgeon. Granted leave of absence for twenty-three days from Oct. 24, 1904, on account of sickness. Nov. 30, 1904.

MACDONALD, JEANNETTE, medical inspectress, San Francisco Quarantine. Granted leave of absence for eighteen days from Dec. 10. Nov. 26, 1904.

HANRATH, F. R., pharmacist. Granted leave of absence for twenty-seven days from Oct. 25. Nov. 25, 1904.

CHANGES IN THE MEDICAL CORPS U. S. NAVY THE WEEK ENDING DECEMBER 10, 1904.

WHEELER, W. W., surgeon. Detached from the "Philadelphia," ordered home, and granted sick leave for three months.

SEAMAN, W., passed assistant surgeon. Detached from the "Wabash," and ordered to the Navy Yard, Boston, Mass.

C. D. BROWNELL, surgeon. Detached from the "Amphitrite," Dec. 20, and ordered to the "Iowa."

URIE, J. F., surgeon. Sick leave extended three months from Dec. 9, 1904.

SOCIETY NOTICE.

BOSTON MEDICAL LIBRARY MEETINGS. — The Boston Medical Library in conjunction with the Suffolk District Branch of the Massachusetts Medical Society will hold a meeting on Wednesday, Dec. 21, 1904, at 8.15 P.M., at the Library, 8, The Fenway. Program: Nephritis: Medical Treatment, Dr. Franz Pfaff. Surgical Treatment, Dr. Paul Thorndike. The Prognosis of Nephritis from the Standpoint of Life Insurance, Dr. Frank Wells. Discussion, Drs. Henry Jackson, John L. Morse, J. W. Elliot and John Bapst Blake. Light refreshments at the end of the meeting.

GEORGE G. SEARS, M.D., *Chairman.*
E. A. LOCKE, M.D., *Secretary.*

RECENT DEATH.

HENRY SMITH BABBITT, M.D., M.M.S.S., died in Dorchester, Dec. 10, 1904, aged seventy-eight years.

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheater of the Boston City Hospital on Dec. 16, from 10 A.M. until 12.30 P.M.: Cholecystectomy; Radical Cure of Umbilical Hernia; Nephrotomy for Renal Calculus; Plastic operation for Exstrophy of Bladder; Fissure of Anus.

APPOINTMENT.

DR. CHARLES HARRINGTON has been appointed Secretary of the Massachusetts State Board of Health.

BOOKS AND PAMPHLETS RECEIVED.

De l'Anémie Ankylostomiasique des Mineurs. Par le Dr. A. Manouvriez. Reprint. 1904.

A Manual of Practical Medical Electricity. The Röntgen Rays, Finsen Light, Radium and Its Radiations and High-Frequency Currents. By Dawson Turner, B.A., M.D., F.R.C.P., Ed., M.A.C.P. Lond. Fourth Edition, Revised and Enlarged. Illustrated. New York: William Wood & Co. 1904.

Neurology in Philadelphia from 1874 to 1904. By Charles K. Mills, M.D. Reprint.

A Treatise on Obstetrics. For Students and Practitioners. By Edward P. Davis, A.M., M.D. Second Edition. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1904.

Clinical Lectures and Essays on Abdominal and Other Subjects. By H. D. Rolleston, M.A., M.D. Cantab., F.R.C.P. Philadelphia: P. Blakiston's Son & Co. 1904.

A Text-book of Physiological Chemistry for Students of Medicine and Physicians. By Charles E. Simon, M.D. Second Edition, Revised and Enlarged. Philadelphia and New York: Lea Brothers & Co. 1904.

Regional Minor Surgery. Describing the Treatment of Those Conditions Daily Encountered by the General Practitioner. By George Gray Van Schaick, M.D. Illustrated. New York: International Journal of Surgery Co. 1904.

Strabismus, or Squint, Latent or Fixed. A Supplement to the Errors of Refraction. By Francis Valk, M.D. Illustrated. New York and London: G. P. Putnam's Sons. 1904.

Kirkes' Handbook of Physiology. Handbook of Physiology. Revised by Frederick C. Busch, B.S., M.D. Fifth American Revision. Illustrated. New York: William Wood & Co. 1904.

A Simple Method for the Reduction of Luxations of the Humerus. By Eleanore Boulton, A.B., M.D. Reprint.

The Quarter and Semi-Decade Treatment and Curability of Epilepsy. By C. H. Hughes. Reprint.

How to Cook for the Sick and Convalescent. Arranged for the Physician, Trained Nurse, and Home Use. By Helena V. Sachse. Second Edition, Revised and Enlarged. Philadelphia: J. B. Lippincott Co. 1904.

Beri-Beri: Its Symptoms and Symptomatic Treatment. An Essay. Printed by the Board of Trinity College, Dublin, for the Author. By Percy Netterville Gerrard, B.A., B.Ch., B.A.O., M.D. London: J. & A. Churchill. Philadelphia: P. Blakiston's Son & Co. Also Extracts from the same.

The Evolution of Surgery. By J. Ewing Mears, M.D. Reprint.

Transactions of the Obstetrical Society of London. Vol. xlvi. For the Year 1904. Part iii, for June and July.

Surgical Treatment of Chronic Dysentery. By J. Henry Barbat, Ph.G., M.D. Reprint.

Fractures into and about the Elbow Joint. J. Henry Barbat, Ph.G., M.D. Reprint.

Uretero-Cystostomy, with Report of Case. By J. Henry Barbat, M.D. Reprint.

Strangulated Femoral Hernia Containing Appendix. Report of Two Cases. By J. Henry Barbat, Ph.G., M.D. Reprint.

Status Epilepticus: A Clinical and Pathological Study in Epilepsy. By L. Pierce Clark, M.D., and Thomas P. Prout, M.D. Reprint.

Suggestions and Plans for Psychopathic Wards, Pavilions and Hospitals for American Cities. By L. Pierce Clark, M.D., and H. P. Alan Montgomery, Ph.B. Reprint.

A Text-Book of Materia Medica, including Laboratory Exercises in the Histologic and Chemic Examination of Drugs. For Pharmaceutic and Medical Schools and for Home Study. By Robert A. Hatcher, Ph.G., M.D., and Torald Sollmann, M.D. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Original Articles.

TWO CASES OF CHRONIC PEMPHIGUS OF THE MOUTH.*

BY JOHN W. FARLOW, M.D., BOSTON.

UNDER the name of pemphigus were formerly grouped a variety of different diseases of the skin in which eruptions of bullæ were present. Further experience has shown that many of the cases should be excluded from this designation, and the name pemphigus is now applied (according to Morrow, "Dermatology" Vol. 3, page 205), to "an eminently chronic disease of the skin, characterized by successive eruptions of variously-sized bullæ, without any primary inflammation, running an indefinite, atypical course, and often ending fatally."

Grouven, in the *Archiv für Dermatol.*, Vol. 55, page 88, says: "Chronic pemphigus is a disease characterized by the repeated development of elevations of the epidermis of the skin or the epithelium of the mucous membranes. On the latter, bullæ are seldom seen, because the easily macerated covering bursts very early."

There are occasionally acute forms, in which, also, the mucous membranes are frequently invaded, and dysphagia, from lesions of the mouth and throat, may be the cause of death. It is a rare disease, occurring, perhaps, in the proportion of 1.5 per 1,000 skin diseases.

I will first give a short account of two cases which came under my care and then discuss, in a more general way, the appearances which have been found in other recorded cases together with the differential diagnosis and treatment.

Miss A., twenty-two years of age, was seen by me about ten years ago, and was under observation for several months. Her general health was good and there was no family or personal history bearing on the case. For nearly a year before consulting me she had complained of blisters forming in the mouth, generally on the gums near the teeth. They appeared from time to time, were quite painful and interfered with eating. I found the membrane at the seat of the eruption was whitish, loose and easily detached, leaving a tender, raw surface. Some of the spots were of the size of a cherry stone, and others were larger. They were confined to the gums near the front teeth and the inside of the cheek. There was nothing found abnormal elsewhere in the mouth or throat. Various sedative and astringent washes were used, and in a short time the eruption would diminish only to return again as before. This was the story during the entire time she was under my care. Examination of the teeth and gums by excellent dentists gave no clew to a cause, examinations of the urine for various mineral poisons were negative, and bacteriology threw no light on the case. I showed her at a meeting of the Boston Society for Medical Improvement and also to a number of dentists, but no hint was forthcoming as to the nature of the case; and when I went away on my vacation the same crops of blisters were continuing to appear. When I returned from a three-months holiday I lost sight of my patient, and could not blame her for giving me up. I have not heard from her since, but I can show you a water color drawing of the front of the mouth, in which the whitish, loose mucous membrane is well shown.

Figure shows detached, white membrane on gums near upper front teeth.

My second case served to throw light on case number one and made clear to me the obstinate, chronic, recurring nature of the malady.

Mrs. B., about fifty-five years of age, was seen by me in July, 1897. For a good while, without known cause, blisters had appeared on the lips, gums and inside of the cheeks. She said there was not much pain for about a year, but the blisters were getting much worse. The urine had been acid and she had taken alkaline treatment. There was no trouble with the teeth. I found slightly raised, reddish swellings with raw surfaces on the gums near the upper, left, front teeth, very much as in my former case, although the color was not whitish. There was no trouble with the rest of the mouth or the throat. July 30, the gums seemed better, but there was tenderness of the membrane at the seat of the former eruption, which interfered with eating, and she preferred bland, liquid food. On Sept. 12, she was much better generally, but the inside of the cheek and under the right side of the tongue were very sore. On Oct. 17, an eruption of blisters appeared inside the right, lower, alveolar process. These were at first reddish and soon lost their covering and became raw and tender. These crops of blisters had appeared from time to time in spite of treatment directed towards the mouth and the general condition. The coverings of the blisters were redder than in the other case and did not show so much of the white, loose detached membrane, but the two cases were otherwise very similar in appearance and behavior.

Later she went to Europe and was under the care of a number of eminent dermatologists and other specialists, but all to no purpose. A few days ago I received a letter from her Boston oculist, in which he says, "Mrs. B. has been under my care for the last five or six years. She went abroad three years ago and was treated by several specialists in Paris, and returned a good deal worse than when she went. A year ago last winter she went to California, where she had an attack of ulceration of the cornea. She returned to Boston last spring having practically lost the sight of the right eye. She spent last winter in California and I hear that her health is better. She

* Read at the annual meeting of the American Laryngological Association, June 4, 1904.

has been taking increasing doses of arsenic, and when I last saw her the buccal mucous membrane was improved. It is strange to say that the ulceration of the mouth has not left the cicatricial bands that one would expect to find."

I have just received a note from an eminent New York dermatologist, who says: "Mrs. B. has been under my care, more or less, for about a year with pemphigus of the buccal cavity and eyes. The blisters in the mouth have been controlled by the use of arsenic, etc., which, however, she has often had difficulty in taking. Before the treatment she would have as high as six or eight blisters during the day, but for several periods when under treatment she would often go a number of days without having one. The larynx has never been affected, so far as I know, and there have never been any cicatrices or adhesions from any of the buccal lesions."

A week ago, after I had finished this paper, I saw Mrs. B. again. She told me that the blisters in her mouth had been almost entirely on the gums and the roof of the mouth, and occasionally there had been some far back on the palate, where she could barely reach them with the finger, and even beyond. There had also been blisters in the nose, chiefly on the septum, with pain, crust formation and obstruction to breathing. The nose had been free from trouble for a good while. At one time she suffered from similar eruptions in the vagina. She is entirely blind in one eye, and the other eye is giving her a great deal of anxiety. She now remembers that about twenty-five years ago she had an eruption on the lower leg and foot, the nature of which was not evident to the dermatologist whom she consulted. She has since been told that this may have been pemphigus of the skin.

For about a year she has taken arsenic, one half a grain a day, and thinks the blisters in the mouth are, to a great extent, kept under control by it.

Such cases are very uncommon in New England, according to my experience. In looking over the records of the Boston City Hospital I found the case of a woman, thirty-two years old, with chronic pemphigus of the legs and body. There were also blebs and ulcerations of the inside of the mouth. After a stay of several weeks in the hospital she was discharged "relieved." Dr. J. C. White, Professor of Dermatology in the Harvard Medical School, and in charge of the Clinic for Diseases of the Skin at the Massachusetts General Hospital for many years, writes me that he has seen but two cases of real bullous lesions of the mouth unaccompanied by disturbances of the integument before or afterward. In the few cases of real pemphigus of the skin which he has seen the mouth has been affected in a small percentage only.

Dr. L. H. Miller [1] describes the case of a man seventy-two years of age who was under observation for twenty months. On the inner side of the cheek, opposite the second molars, on other parts of the mouth and on the epiglottis were white patches which could be stripped up like false membrane and bled on removal. This eruption appeared and disappeared from time to time without regard to treatment.

Dr. J. H. Bryan, at our twenty-first annual meeting, described a case where there was a white membrane on the epiglottis and later on the gums just below the incisor teeth. Dr. Jonathan Wright, from examination of the laryngeal membrane, considered it pemphigus. He had previously seen and assisted in the diagnosis of Dr. Miller's case. Dr. Bryan thought it was to be differentiated from diphtheria, tuberculosis, syphilis, herpes and the effect of acids and alkalies. Treatment was of but slight benefit.

In the *Journal of Laryngology*, March, 1904, is described a case shown for diagnosis by Mr. Creswell Baber. A man, sixty-nine years of age, was seen in September, 1903. He had noticed roughness inside the cheeks for three or four months. Early in August he first noticed extensive white spots in the mouth and throat. Mr. Baber found numerous white patches of varying size and shape on the sides of the tongue, inside of the cheeks, on the gums, soft palate, and a similar condition in the larynx. These membranes were easily detached, and left a red, abraded, bleeding surface. The epiglottis was thickened and had white patches on it, and the cords were red and abraded. There was some dysphagia, but no dyspepsia. The case had apparently improved somewhat under treatment. Sir Felix Semon thought it a case of pemphigus. He said such cases were very rare, but in this instance the appearances were so characteristic that it was hardly possible to mistake it for anything else. The diagnostic difficulty was due to the short vitality of the bullæ, which lasted only a few hours. The only thing that could make one doubtful was the appearance of the inside of the mouth, but cicatrization was not uncommon in cases of pemphigus of mucous membranes. This was particularly characteristic when the disease affected the conjunctiva, causing the condition known as "essential shrinking of the conjunctiva." In these cases the patient might become totally blind. In the nose, adhesions and total obstruction might occur. The fact that there was no external manifestation was not in the least proof against the diagnosis. This was the fourth case he had seen. In the first two the affection was entirely limited to the mucous membrane. In the third case, which showed a condition internally exactly like Mr. Baber's patient, there was also pemphigus of the skin.

In the *Journal of Laryngology*, August, 1904, Mr. Baber described the further course and termination of the case. About the middle of January bullæ of various sizes broke out on the skin, everywhere except on the face. The throat affection, which at the onset of the pemphigus on the skin seemed to improve, subsequently progressed *pari passu* with the latter. Large doses of arsenic were of no service. He died of exhaustion in March, 1904. There was no eye affection.

Dr. J. C. Symonds also spoke of two cases which he had shown, one of which had the conjunctival form as well as patches on the pharynx and epiglottis. In the other case there were no bullæ, but curious, white patches, which came and went.

An occasional result of the pemphigus erup-

[1] N. Y. Med. Jour., July 3, 1897.

tion is the formation of adhesions between the mucous surfaces of the fauces. Avellis, in *Münch. Med. Wochenschr.*, No. 10, 1900, says that three cases of such adhesions have been reported, to which he adds a fourth, in which the soft palate and the posterior pillars were so united to the posterior pharynx that only a very small opening into the postnasal space was left. By the use of hard rubber bougies the opening was dilated, the adhesions separated and prevented from returning. He states that such adhesions have to be differentiated from those of syphilis, scleroma, lupus and diphtheria.

According to Dr. Brocq,[2] the study of the mucous membrane manifestations of pemphigus has assumed considerable importance in recent years, thanks to the numerous works of oculists and laryngologists. The known cases can be divided into two great classes: (1) Eruption on mucous membrane and skin at the same time. There exist recorded cases in which the bullæ have remained confined to the mucous membrane for many years and have finally involved the skin. These cases establish an insensible transition between the first and second groups. (2) Here the lesions are confined to the mucous membrane alone and are found in the mouth, nose, pharynx, larynx and conjunctiva.

Dr. A. Thost [3] says: "Pemphigus of the mucous membrane of the mouth, pharynx and larynx is a rare affection which coincides nearly always with pemphigus of the conjunctiva, and which attacks, ordinarily, cachectics or very old persons and is never accompanied by pemphigus of the skin." (This last statement is quite contrary to the testimony of others.) "The affection is characterized by the appearance of irregular, white patches, formed by an elevation of the epithelium, giving rise to bullæ of short duration, quickly replaced by whitish islets of detached epithelium. When there is contact between the parts affected there can form adhesions, as in the conjunctiva, the nose, pharynx and the anterior commissure of the vocal cords. In the nose there may be epistaxis, sneezing and crust formation. The characteristic features of chronic pemphigus of the mucous membrane are:

"(1) Affection exclusively of the mucous membrane.

"(2) Universal participation of the ocular conjuctiva, which tends to form synechiæ.

"(3) Tendency to proliferation and adhesion of mucous surfaces.

"(4) Chronic evolution without fever.

"(5) Treatment of no avail.

"(6) Cachexia and dystrophy, cutaneous and muscular."

Dr. G. Trautman in his work "Zur differential Diagnose von Dermatosen and Lues," Wiesbaden, 1903, cities four kinds of cases of pemphigus, with extensive bibliography:

"(1) Skin eruption primary, that of mouth, etc., secondary.

'(2) Coexisting skin and mouth, etc., eruptions.

"(3) A large number of cases of primary eruption on mucous membrane and secondary on the skin. In one case the skin eruption did not appear until eighteen years after the beginning of the buccal lesions. In another there was closure of the mouth for eighteen years from the contraction of mucous membrane of the cheeks. Kaposi in over three hundred cases of pemphigus had never seen contraction of the mucous membrane of the mouth.

"(4) Many cases of mucous membrane eruption alone, one of twelve years' and one of twenty-seven years' duration.

"The places of predilection are the tongue, cheeks, lips, hard and soft palate, uvula, pharynx, epiglottis and arytenoids, and it takes usually a descending course. Generally there are no intact bullæ seen, but grayish white, macerated membrane, loose, whitish deposit, flat, red erosions, granulating surfaces, also circumscribed erosions with a covering of thin pus or a tenacious, thick membrane, which can become confluent and persistent; at times thickening of separate organs, as the epiglottis and vocal cords. Ulceration and deep loss of substance are occasionally seen. There are usually no enlarged lymph glands. It is very obstinate to treatment."

O. Chiari, in his book, "Krankheiten des Rachens," says that "Pemphigus pharyngis is nearly always in adults and appears as on the skin. In the throat, as well as in the mouth, the benignant form seems to be very rare, as only a few authors mention its ending in recovery. But cases of many years' duration have been observed. The reason why the eruption in the mouth so seldom heals lies in the maceration by the saliva and mucous and in the presence of numerous bacteria. On that account, in most cases, after a longer or shorter time, the mucous membrane of the mouth becomes to a large extent excoriated or ulcerated, so that chewing and swallowing are interfered with; consequently, pemphigus of the mouth generally assumes a malignant character. It begins in the mouth with either blisters or an epithelial thickening. Blisters, bullæ, appear if the exudation follows quickly and to a large amount. If the exudation takes place more slowly and in lesser quantity, the epithelium becomes infiltrated and cloudy. If the exudation coagulates, a whitish or whitish-gray deposit forms, which has a strong resemblance to diphtheritic membrane. The bullæ become quickly macerated, so that they cover over the excoriated places like folded, rolled-up deposits. The mucous membrane in the neighborhood is often unchanged; sometimes thickened, here and there loosened and tending to bleed. In rare cases the first eruption can be accompanied by fever, but usually the patients are troubled only by salivation and difficulty in chewing and swallowing. After rupture of the blisters there remain circumscribed, excoriated places, which either become covered with epithelium or show a thin, purulent, or even a thick, membranous deposit. It is possible for the primary eruption to heal and the whole process

[2] La Pratique Dermatologique, vol. 3, p. 771.
[3] Monatschr. f. Ohrenheilk., 1896, Nos. 4 and 5.

be at an end. But nearly always a recurrence takes place after a longer or shorter interval. If these recurrences are infrequent and at long intervals, the process can still go on to a cure. But generally the later recurrences follow quicker and quicker, so that the old eruption is not healed before the new one begins, and the mouth and throat are more or less completely deprived of epithelium, and the individual, by failure of nutrition, goes on to death from exhaustion. The process is generally fatal in less than a year, but can persist for three or more years. Complete recovery is very rare. Very exceptionally there are deeper ulcerations, or the formation of marked granulations on the excoriated places, or it may lead to a contraction of the entire mucous membrane of the mouth, as is observed in the conjunctiva. Not so very uncommon is an extension to the larynx, with formation of bullæ, excoriations, or edema, which may lead to dangerous stenosis."

According to Chiari, " The diagnosis is easy where there is pemphigus of the skin, and even when it is primary in the mouth the characteristic course of the disease is not difficult to differentiate, but it may be confused with diphtheria, stomatitis mercurialis, or epidemica, soor, tuberculosis, condylomata, herpes, erysipelas and cauterizations. Diphtheria is generally in children, begins with fever and does not last as long as pemphigus with its recurrences. The membrane is seldom in the mouth, but in the fauces. Angina mercurialis is seldom seen alone, and forms on the tonsils erosions, grayish white deposits or mostly superficial ulcers and is generally accompanied by stomatitis mercurialis. Angina ulcero-membranacea is an unusual form of stomatitis confined to the tonsils, and causes ulcers with dirty coverings. The above heal on removal of the cause. Soor is almost always in nursing children. Tuberculosis causes characteristic ulcers of the throat and is generally associated with laryngeal and pulmonary disease. Syphilitic papules never form so extensive excoriations as pemphigus, and there are no bullæ. Herpes is characterized by small, watery vesicles surrounded by a red areola, and the resulting ulcers are also small. They sometimes, however, become covered with membrane, which can become confluent over a larger surface. Erysipelas can, in rare instances, form large bullæ in the throat, but it is an acute disease with a typical course. Cauterizations with acids, alkalies, hot water, steam, etc., can cause large blisters, but generally there are excoriations or deep extensive necrosis of tissue with various colored sloughs. The history and course are unlike pemphigus."

In spite of the alleged ease of diagnosis, the fact remains that uncertainty and mistakes in regard to the nature of the affection have been very common when there was no external manifestation to furnish a clew. It is much easier to understand with what sort of a disease we have to deal when we have the patient under observation for a number of months or years and have tried the effect of syphilitic and other remedies than it is to form a correct idea of the serious nature of the case when seen for the first time and there are only lesions in the front part of the mouth of uncertain character and when the important fact of recurring lesions in spite of treatment is not yet developed.

Many cases have been considered as irregular forms of syphilis, but my two cases seemed to me more like examples of recurring herpes. But I now see that the detached pieces of white, loose epithelium with the tender and bleeding underlying surface, especially when so rebellious to treatment and so prone to recur, gave a picture quite unlike herpes. Typical bullæ are much more likely to be found on the epiglottis than in the mouth.

When ulcerations and synechiæ appear on the conjunctiva they are a great aid to diagnosis. Several writers lay stress on the absence of enlarged lymphatic glands. In studying the cases there is noticed the usual absence of the eruption from the tonsils, an important point when considering the diagnosis from syphilis and tuberculosis. The adhesions between the mucous surfaces of the fauces and the pharynx require a very careful study into the past history of the case in order to rule out very similar specific lesions.

The question naturally presents itself whether these cases of recurring, bullous eruption of the mucous membrane without involvement of the external skin strictly belong under the title of true pemphigus. It seems to me that they do, because the eruption and course of the disease are the same whether the skin is affected at the same time or not, and also because the eruption may be confined to the mucous membrane for many years to appear later on the skin. It is also perfectly possible for cases which have shown, up to the present time, no external manifestations, to develop bullæ on the skin at some near or more remote future time. The obstinate nature of the internal and external eruptions as regards treatment has a certain value in placing them in the same category.

As regards prognosis, Neumann, Mikulicz and others consider that the primary or early appearance of pemphigus on the mucous membranes is a most important sign of malignant form of the disease. Rosenberg, in his book on Krankh. der Mundhöhle, etc., says the prognosis is unfavorable, as, in consequence of weakness (from difficulty in eating, etc.), a fatal termination comes generally in one or two years.

I do not see that the recent recorded cases of oculists and laryngologists prove the truth of this gloomy prediction. All agree that it is a serious and often fatal disease, but its duration seems certainly longer than one or two years in most cases. It is a serious matter to tell a patient of middle age, in fair health, that a few recurrences of blisters of the mouth point to very possible blindness and a fatal termination inside of two years. I do not see that the facts surely justify such a statement. I have quoted Thost as say-

ing that the disease ordinarily attacks cachectics or very old persons, in whom the disease would naturally run a malignant course, but I have found so many exceptions to this statement of the kind of person affected that I feel that his experience may have been different from that of many other writers.

As regards treatment, a most important point is to keep the teeth, mouth, nose and throat clean by proper alkaline and antiseptic washes in order to prevent secondary infection of the erosions and other lesions. It may be necessary to use some local anesthetics in case the pain is sufficient to interfere with eating and thus cause weakness. Cocaine, orthoform and morphine are of value for this purpose. The lesions themselves can be painted with nitrate of silver of varying strengths, iodine preparations, etc., but my own experience did not furnish satisfactory results. For internal treatment arsenic has some strong advocates. Dr. Bulkley of New York is quite earnest in his recommendation of large doses. As to other drugs, there is a great difference of opinion and no enthusiasm or encouragement that any of them have a surely beneficial action in retarding the progress of the disease. The general nutrition should be attended to very carefully, especially where there are painful lesions in the mouth or throat.

In Krieg's "Atlas der Kehlkopfkrankheiten," Stuttgart, 1892, are some excellent colored plates showing pemphigus of the mouth.

LEPROSY.*

BY THEOBALD SMITH, M.D., BOSTON.

The occasional appearance of imported leprosy in our midst, the difficulty of knowing how to deal satisfactorily with it, and the frequent errors in diagnosis made before the true nature of such cases is recognized, may serve as an excuse for bringing up this somewhat foreign subject.

Leprosy may be regarded as one of the most ancient of maladies which has maintained itself up to the present. Though rare in highly civilized countries, it is quite well established in South America, Africa and Asia. Even in Europe there are persistent foci in Russia, the Balkan States and in Norway. Occasionally a slight tendency toward greater diffusion is noticed, as in Eastern Prussia in 1896 from the Russian provinces. The great diffusion and prevalence of leprosy throughout Europe in the Middle Ages and its equally remarkable shrinkage and gradual disappearance after the fourteenth century are unique facts in epidemiology. It seems scarcely credible that there were 19,000 leprosies in Christendom, and that in France alone there were 2,000. The disappearance of the disease is ascribed to the stringent measures applied toward lepers, which consisted either in casting them out of communities and making them vagrants, or else in confining them in special hospitals. In the middle of the past century the theory that the disease is inherited rather than caught was promulgated and defended by two Norwegians, Danielsen and Boeck. The clinical history certainly tended to favor this view, but the discovery of the lepra bacillus in 1879 and 1880 by Hansen and by Neisser gradually put an end to this theory, although as late as 1894, Dr. J. C. White of Boston still considered it necessary, in view of the persistent prevalence of the theory of heredity, to vigorously defend the theory of infection. In England some authorities believe that the consumption of fish stands in some relation to the disease.

The causal relation of the Hansen bacillus has been firmly established by examinations made in many parts of the world on different types of the disease. The disease is not readily transmitted, however, and prolonged exposure, as in family life, seems necessary to successful infection. Yet even in the family infection does not always follow. Koch mentions a mother who nursed and lost a husband and four sons during a period of twenty years, but remained free herself. Hansen states that none of the children of the one hundred and seventy Norwegian lepers who migrated to this country became diseased. This apparent hesitancy of the lepra bacillus to invade a new subject must not shut our eyes to the fact that we have an infectious disease to deal with, and one peculiarly offensive because of its prolonged duration and tendency to extreme mutilation of the body. The rapid diffusion of the disease in the Middle Ages, and in the Hawaiian Islands in the last century, indicates that perhaps some variety of this species of bacillus differing slightly from the one encountered to-day was responsible, and that some slight variation in the character of the bacillus may in part repeat the history of former centuries if our negligence permits it. Personal hygiene is not so highly developed in the densely crowded portions of our cities as to stand in the way of a spread if other conditions are favorable.

It is well known that leprosy appears under two clinically quite distinct types, the tuberculous and the anesthetic. To this a third, the so-called mixed or intermediate type, has been added. The anesthetic type, which is marked chiefly by lesions of the nervous system, is the type prevalent in those countries where leprosy has been endemic for long periods of time. The tuberculous is the more common type in foci of recent origin.

In the anesthetic type bacilli are scarce in the lesions. In the tuberculous type they are, as a rule, abundant. Within recent years attention has been drawn to the lesions of the nasal mucous membrane and to the presence of large numbers of bacilli in the discharge from the nose as a possible source of infection. Thus Sticker gives the following statistics obtained by an examination of patients in Calcutta, India. Of 57 cases of tubercular leprosy 55 showed bacilli in the secretions from the nose. In 68 cases of nerve leprosy, 45 had demonstrable bacilli in the nose. In 28 cases of the mixed type, 27 were discharging

* Kindly written by Dr. Theobald Smith, to take the place of his article on the same subject, read at the July meeting of the Association of Massachusetts Boards of Health.

bacilli from the nose. Kolle examined a large group of cases in the leper hospital of Cape Colony with the following results: Lepra bacilli were found in the nose in all of 45 cases of tubercular leprosy, in 22 out of 30 cases of the mixed type, and in only 21 out of 62 of the anesthetic type.[1] These figures suffice to show that the large number of lepers are discharging bacilli even in those stages of the disease in which ulcers of the skin are absent.

A disease which propagates itself so very slowly, and which makes itself known only in rare, isolated instances, does not create apprehension, and hence preventive measures are usually neglected. We have been told that lepers in the past have moved freely about in our country, using public conveyances and even Pullman cars without hindrance. It seems to us that every leper should be under the constant, vigilant care of public health authorities, and that some action should be taken by the general government which will bring the lepers of the country together in some lazaretto or home where they will be humanely treated, where they may enjoy the society of their kind, and perhaps do useful work. No state is at present in position to deal satisfactorily with these cases, as each has perhaps but one, or at most a few cases within its borders. In all the states there may be not over 100. In 1894 Hyde stated that up to that time 560 cases had been reported in our country.

The success of segregation in leper homes supported by the government is shown in the experience of Norway. There the admission to leper hospitals was at first voluntary, although every inducement was made to have the lepers leave their home. When they remained with their families they were compelled by law to occupy separate beds, and if possible, separate rooms. Clothing and eating utensils were to be kept separate from those of the rest of the family. All dressings for wounds were to be burned. If these measures are neglected the patient is transferred to a leper home. This relatively mild treatment has been signally successful in gradually reducing the number of cases. In 1856 there were 2,870 lepers; in 1900 only 577.

Though it may seem harsh and unnecessary to segregate and isolate those afflicted with a disease which incapacitates so little at first, and which seems so feebly contagious, the history of leprosy, imperfect as it is, bids us protect the family and the public at large, and this can be done most humanely by providing for the lepers a well-equipped hospital under the auspices of the national government, where the patients may be treated and the disease studied from the most advanced standpoint. This would relieve the various states of the burden of establishing and duplicating what would necessarily be unsatisfactory institutions on account of the few to be cared for, and create a center of information concerning this exotic malady.

[1] In a case of tubercular leprosy, quarantined in this state, we found last summer large numbers of acid-fast bacilli, some in the form of the characteristic balls or so-called glabi, in the swabs from the nose.

CHRONIC GASTRIC ULCERS. HOUR-GLASS DEFORMITY OF THE STOMACH. REPORT OF A CASE SUCCESSFULLY OPERATED.

BY CHARLES L. SCUDDER, M.D., BOSTON,
Surgeon to the Massachusetts General Hospital.

A CASE OF HOUR-GLASS STOMACH AND STENOSIS OF THE PYLORUS. DYSPEPSIA FOR TEN YEARS. LOSS OF WEIGHT. OPERATION, GASTROGASTROSTOMY AND GASTRODUODENOSTOMY. COMPLETE RELIEF OF SYMPTOMS.

MARY C. MCK., thirty-eight years old; married. Hospital No. 137,601. East Medical Record 607, page 100.

This patient had influenza ten years ago. Since that time she has had more or less trouble with her stomach, complaining of dyspepsia and indigestion. The 25th of January, 1904, she was in a Marine Hospital in the West. She was given x-ray treatment for "ulcers in the stomach." Three weeks previous to entering the hospital here she noticed a beginning x-ray burn in the epigastric region. She is able to keep nothing upon her stomach and is being nourished by nutrient enemata. She complains of a great burning sensation in the pit of the stomach, which is relieved by vomiting. A few days ago she vomited two tablespoonfuls of blood. She has lost about twenty pounds in weight during the past four months. Her bowels move once a week without medicine. The percussion of the gastric area finds the lesser curvature of the stomach two inches above the umbilicus and the greater curvature three inches below the umbilicus.

June 6, 1904, operation was undertaken because of the persistent vomiting and evident obstruction. On opening the abdomen an hour-glass deformity of the stomach was found. At the pylorus were the adhesions occasioned by an old ulcer. A little to the pyloric side of the middle of the stomach was seen and felt a mass of cicatricial tissue constricting the stomach into two unequal parts, a smaller pyloric portion and a larger cardiac portion. The pylorus would not admit the little finger and only the tip of the forefinger could be made to pass with difficulty from one portion of the stomach to the other through the constricting area. These obstructing portions were evidently cicatrices of old and recent ulcers. There were no glands to be seen or felt. A gastrogastrostomy and a gastroduodenostomy were done. Both of these operations were facilitated by the use of rubber covered clamps, which prevented hemorrhage and the escape of stomach or intestinal contents. The mucous membrane removed from the stomach and intestine showed nothing abnormal. The bacteriological report upon the stomach and intestinal contents from the Pathological Laboratory showed a scum of colonies of colon-like and other bacilli. No micrococci were seen.

The patient recovered satisfactorily from the operation. There was apparently no shock, the temperature did not rise above 99° F. She made an uninterrupted recovery, being able to take with relish whatever food was proper for her, before she left the hospital. Immediately following the operation the patient was nourished by enemata of milk, egg and salt solution every eight hours. Salt solution was given also by rectum to relieve thirst. At the end of three days water was allowed by mouth. Upon the fifth day liquids, including broths, were taken. At the end of about a week soft solids were relished. The patient was up in eighteen days and went home, looking and feeling well and gaining in weight.

"Hour-glass stomach" is the term applied to an anomaly of form of the stomach. The stomach is narrowed at one part so that the cavity of the

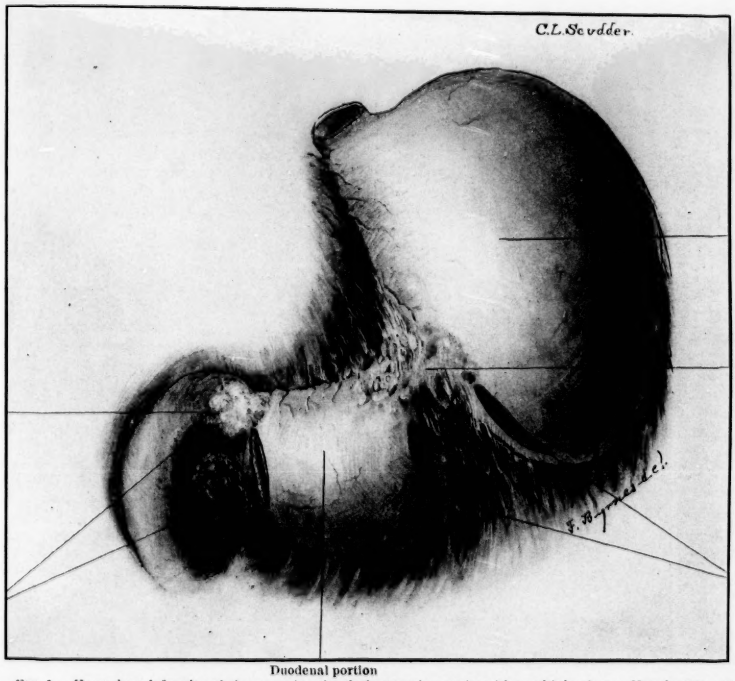


FIG. 1. — Hour-glass deformity of the stomach and pyloric stenosis occasioned by multiple ulcers. Note location of cicatricial parts; the two portions of the stomach; the incisions for Wölfler's gastrogastrostomy and Kocher's gastro-duodenostomy.

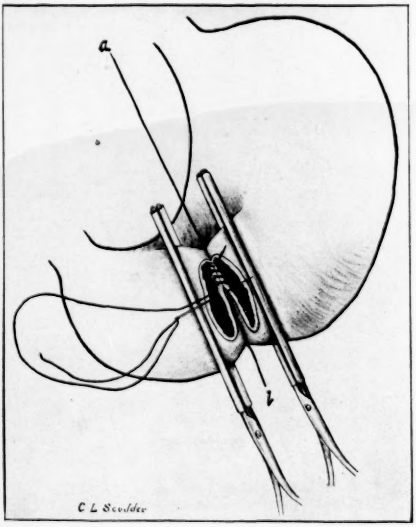


FIG. 2. — Showing the gastrogastrostomy being done after Wölfler's method and by the use of clamps. Note the traction sutures of the first or peritoneal suture (*a*, *b*) and the through-and-through suture being taken.

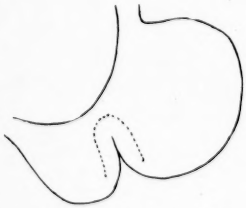


FIG. 3. — Hour-glass deformity of stomach. Gastrogastrostomy by a Finney incision. Note dotted line of incision.

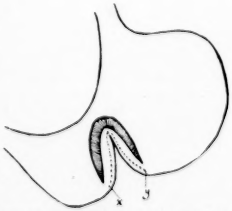


FIG. 4. — Hour-glass stomach. Gastrogastrostomy by a Finney incision. Note incision made, solid lines of gaping edges of incision; peritoneal suture line dotted. The lines *x* and *y* are to be approximated.

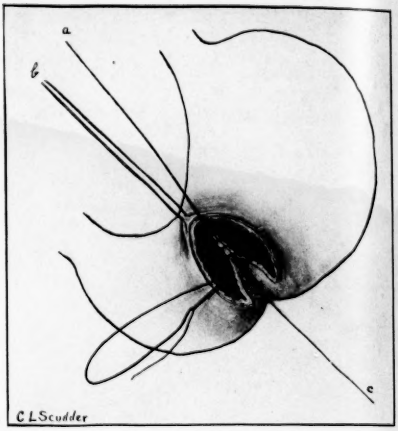


FIG. 5. — Hour-glass deformity caused by ulcer of the stomach. Gastrogastrostomy by a Finney incision. Note: Traction sutures upward (*a*, *b*) and peritoneal traction suture downward (*c*); the through-and-through suture is being taken.

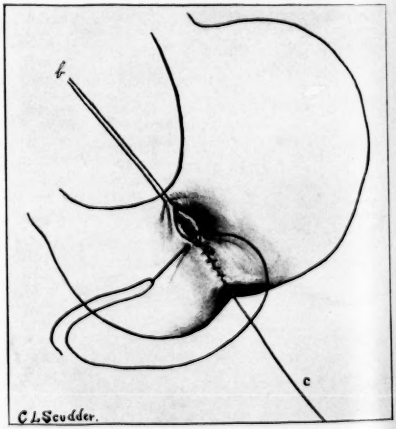


FIG. 6. — Hour-glass deformity caused by ulcer of the stomach. Gastrogastrostomy by a Finney incision. Note: Traction suture (*b*) upward and peritoneal traction suture (*c*) downward: needle completing through-and-through suture. The peritoneal suture, begun below the traction suture (*b*), is continued down over the line of the completed through-and-through suture and secured by tying to the long peritoneal traction suture (*c*). This completes the operation by the Finney incision.

organ is divided into two more or less distinct parts, a cardiac and a pyloric portion. (See Fig. 1.) The constriction is commonly due to the cicatricial tissue about an old ulcer or to carcinoma or to perigastric adhesions from various causes. The usual cause of hour-glass stomach is chronic gastric ulcer. Hour-glass stomach should be regarded as one of the sequelæ of gastric ulcer.

Moynihan [1] in a most attractive paper has pointed out that the congenital origin of hour-glass stomach is extremely doubtful. He finds in his analysis of the reported cases of congenital hour-glass stomach no case, unless that of Mr. W. F. Brook,[2] which will stand upon careful examination. All the reported cases of congenital origin are probably acquired instances.[3]

The symptoms associated with hour-glass stomach are the symptoms of chronic gastric ulcer plus stasis of stomach contents. These symptoms will vary with the physical conditions present depending upon the degree of dilatation of either pouch, upon the narrowness of the opening between the two pouches, upon the patency of the pylorus and upon the adhesion of the stomach to the parts about.

There are several signs of importance in making the diagnosis of hour-glass deformity. *Moynihan's* sign is the following: If the stomach be percussed and then distended with air and after twenty or thirty seconds percussed again, the resonant area will have increased on the cardiac end of the stomach but will remain the same over the pyloric end of the stomach, demonstrating a constricting part.

If a tube is passed and the stomach is washed with a known quantity of water, upon measuring the return water there will be found to be a loss corresponding to the water which has passed through the constricting part into the pyloric pouch. This is *Wölfler's* first sign.

If the stomach is washed until the wash water returns clear — a sudden gush of foul cloudy fluid may occur from the pyloric pouch demonstrating a separation between the two parts. This is *Wölfler's* second sign.

A succussion splash is obtained, the stomach tube is passed, the stomach is emptied apparently and still a succussion splash can be obtained. This has been described by *Jaworski* and has been called "paradoxical dilatation." Upon distending the stomach with gas or air a bulging on the cardiac side is visible and evident to percussion. This bulging gradually subsides as the air passes to the pyloric loculus.

As the gas passes from one side to the other of the constricting part the stethoscope will detect a bubbling sound. *Eiselsberg* pointed out the importance of these latter two signs.

Obviously the treatment of hour-glass stomach is surgical. The conditions found upon opening the abdomen must determine the operation chosen. In the case here recorded a chronic ulcer existed at the pylorus in addition to the one causing the deformity of the stomach. This narrowing of the pylorus necessitated relief and was accomplished by a gastroduodenostomy. The hour-glass deformity was relieved by a gastrogastrostomy after Wölfler's method. (See Fig. 2.)

Bardeleben [4] in 1889 did a gastroplasty upon an hour-glass stomach with recovery of the patient. This is probably the first recorded case of this procedure. Kruckenberg in 1892 [5] did a gastroplasty with an excision of the ulcer. The patient recovered and was relieved.

The first gastrogastrostomy for hour-glass stomach was done by Wölfler [6] in 1894, with recovery of the patient. This operation of Wölfler has remained one of the best procedures and is practically a lateral anastomosis. Watson [7] of Boston in 1895 performed a gastrogastrostomy successfully by an original and unique method, and in the case reported the method proved satisfactory. Because of recent improvements in operative technique the procedure suggested by Watson is now unnecessary.

Gastroenterostomy between either one or both pouches is sometimes indicated.

Dilatation of the constricting part may be a wise step as is suggested by Robson [8] and Moynihan when the constriction is so far toward the cardiac orifice as to preclude the possibility of effectively making any anastomosis between the two portions of the stomach. A gastroenterostomy at the same time, perhaps, will asist in the healing of the ulcer.

A partial gastrectomy may wisely be done in a cetain few of these cases of deformity from old ulceration. By partial gastrectomy the ulceration and its surrounding infiltration may be completely excised and an end to end anastomosis made or a closure of duodenum and stomach accomplished and a gastroenterostomy done.

Kammerer describes a procedure which he has followed, somewhat like Finney's gastropyloduodenostomy, in a case of hour-glass deformity of the stomach. (See Figs. 3, 4, 5, 6.)

Robson uses the bone bobbin in making a gastrogastrostomy, thinking thus to secure greater accuracy of adjustment and less likelihood of leakage and an immediately patent orifice.

As in all operations upon the stomach and intestine, operations upon the hour-glass deformity of the stomach should be performed with especial cleanliness, hemostosis and efficiency of suture. Mouth, stomachic and intestinal asepsis are very important and should be secured if possible. This will necessitate some three or more days' preparation. It seems to me that this internal asepsis is just as important as is the asepsis of the skin, the external asepsis.

It may not always be possible to secure complete asepsis internally but an attempt to secure it will be rewarded by better results. Internal asepsis is one factor which will contribute to satisfactory results in stomach and intestinal surgery. Care of the nose, mouth and teeth, thorough emptying of the stomach and intestine, and a sterile diet are the steps to be followed in securing asepsis.

It may be impossible to as completely empty the pyloric pouch previous to operation as one empties the non-deformed stomach. The use

therefore at operation, when possible, of carefully adjusted rubber covered clamps will prevent the soiling of the peritoneum by the escape of any stomachic contents. The hemostatic value of the rubber covered clamp is great.

The improvement in the general condition of the patient following the relief of the obstruction in an hour-glass deformity of the stomach is rapid and very considerable. If the deformity is due to carcinoma the improvement will not, of course, be permanent.

REFERENCES.

[1] Brit. Med. Journ., February, 1904.
[2] Brit. Med. Journ., May 7, 1904.
[3] Brit. Med. Journ., May 28, 1904.
[4] Berliner Klinische Wochenschrift, 1889.
[5] Münchener Medicinische Wochenschrift, 1893, no. 19.
[6] Beiträge zur Klinischen Chirurgie, 1895, no. 13, p. 221.
[7] Trans. Am. Surg. Association, 1900, vol. xviii, p. 165.
[8] The surgical treatment of diseases of the stomach. 2d edition. Wm. Wood & Co. 1904.

THE DECREASE IN THE DEATH-RATE OF CONSUMPTION.*

BY LESTER C. MILLER, M.D., WORCESTER, MASS.

IN the midst of strenuous endeavor toward the attainment of a well defined object, it is not without profit to occasionally review the work done, take account of stock and estimate the profits. It may be that what has been accomplished so gradually as to seem of small importance may, in the aggregate, assume large proportions. Courage for greater endeavor may be acquired from such a review, and perhaps methods may be improved.

It was with some such idea in mind that I undertook the task of reviewing such literature on the subject of tuberculosis as dealt with the work done toward its extinction. Treatment of any kind not directed toward the decrease or prevention of the disease I did not study. It is the result of my reading that I ask you to consider to-day.

I quote freely from many writers, often without giving their names. The discussion is not intended to be exhaustive, but rather suggestive and to provoke discussion. It is the purpose, then, of this paper to show:

(1) The decrease in the death-rate of consumption as given in the vital statistics of several countries and from other available sources of information.

(2) The significance of the decrease in the death-rate.

(3) The chief causes of this decrease, with a discussion of the more modern investigations into the modes of infection.

The value of vital statistics for purposes of comparison is often questioned. It is well understood that imperfect, ignorant, or even false death returns are made. Some sections of this country give more accurate returns than other sections. The Census Bureau has taken this into account, and has attempted to eliminate mistakes as much as possible, by comparing the returns of their own census takers with the returns from the cities and towns themselves. For the sake of still greater accuracy they have compiled by themselves the returns from certain states and from a large number of cities, whose systems of reporting vital statistics are the same or nearly the same as that used by the United States. These states and cities taken together are called the registration area. Nearly all the United States statistics I quote are taken from this area. The registration area of 1900 comprised about one third of the total population of the United States.

The total number of deaths reported as due to consumption in the whole United States during 1900 was 109,750, of which 53,626 were males, and 56,124 were females. The ratio of deaths from this disease to 1,000 deaths from all known causes was 109.9. In 1890 the corresponding ratio was 122.3. In 1900, in the registration area, the same ratio was 106.3 to every 1,000 deaths from all known causes. Much more valuable statistics are figured on the death-rate from consumption per 100,000 of population. In 1890 the death-rate from this disease was 245.4 per 100,000 of population; in 1900 the rate was 187.3, a decrease of 58.1 deaths in ten years.[1]

It is interesting to compare these figures with those for the same years in England and Prussia. In England the death-rate from consumption has been declining since 1838, when it stood at 380 per 100,000 of population, down to the present time. In 1890 the rate was 238 per 100,000 of population; in 1900 the same ratio was 190. At the present time it is much lower than that, somewhere about 130 per 100,000 of population.[2] In the tuberculosis death returns of Prussia is included all forms of tuberculosis. Up to 1887 there was little if any diminution in the death-rate from tuberculosis. That, too, in Koch's country, and for six years after the discovery of the tubercle bacillus. But in 1887 the drop in the Prussian death-rate began, and has continued comparatively steadily to the present. In 1890 the death-rate was 280 per 100,000 of population; in 1900 the rate was 210 per 100,000. The drop in the death-rate in Prussia has been much more rapid than in either the United States or England.

In order to bring the subject nearer home I have looked up the statistics for Massachusetts back to 1866. These I have arranged in the form of a chart based on the death-rate per 10,000 of population (see chart). It is instructive to note that our own death-rate began to drop about 1881–82, the year of the discovery of the tubercle bacillus. From then to the present the drop has been steady, from 1880, when the death-rate was 33.2 per 10,000 of population, to 1900 when it was 18.5 per 10,000, a decrease in twenty years of 14.7 for every 10,000 of population.[3] That means, if the record could be the same for the next twenty years, the death-rate from consumption would be 3.8 per 10,000 of population in 1920.

A similar chart, prepared by Hillier to show the English and Prussian death-rate, is equally promising. According to that chart the death-rate in Prussia will reach the zero mark in 1927.

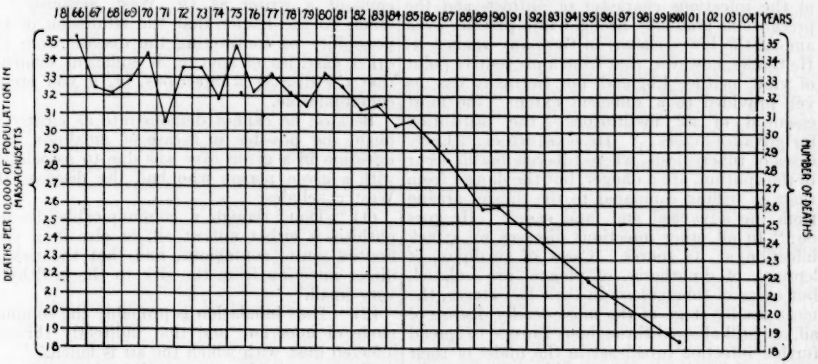
* Read before The Worcester District Medical Society, Oct. 12, 1904.

In England the zero will not be reached for twenty years more, or about 1947.[4]

In order to bring these statistics more clearly before our minds, let me summarize them. As Hillier says, "compared with the annual death roll from tuberculosis in the British dominions alone the losses in the South African war were a bagatelle." At the present death-rate in the United States in four years 125,000 more persons die of consumption than died from all causes during the four years of our Civil War. It has the largest mortality record of any disease; pneumonia alone approaches it.

able if the parents suffer that the children should be weakened and succumb easily to tubercular infection.

In spite of these two serious drawbacks to a low death-rate, we have decreased our death-rate approximately as fast as they have abroad, and we are fast equalling them in our efforts to stamp out this disease. None the less, I do not anticipate so rapid a decrease in the next twenty years. In the first place the past twenty have been house-cleaning years. We have gradually learned the power of cleanliness to save lives that before were wasted for lack of protection. Fresh



These are the facts which should urge us to every endeavor to stamp out the disease. For our encouragement we have a decrease in the death-rate which is not only large, but with each succeeding decade has been more marked.

As already shown, the decrease in 1900 in the United States was 58 per 100,000 of population; in England it was 48, in Prussia, 70, and in Massachusetts 74 less than in 1890. In the United States two factors must enter into all considerations of the possibility of reducing the death-rate from tuberculosis — first, our large colored population; second, foreigners who make their homes here, and their children either born here or brought here while very young.

The largest death-rate from consumption has always been among the colored people (nearly three times that of whites). The District of Columbia has the largest death-rate, according to population, from this disease of any state, and this is due, without doubt, to the large number of negroes living there.[1]

The next largest death-rate is among foreigners or immigrants and the children of foreign-born mothers. The reasons for this are not hard to understand. People from different climates, with different customs, possibly not the best physically of their race, come here and try to live, eat, drink, dress and expose themselves to the weather as they have been accustomed to do at home; add to these poverty, and the result is often disastrous for the individual. It is inevitair and food have accomplished much toward cures in incipient cases, and delayed death in other cases. The last twenty years, then, have been a crusade against filth, and because filth abounded the years show a fine record. There is still filth enough to occupy us for some time to come. It does not seem to the reader, however, that the next twenty years can make as good a record in figures, unless something radically new of a curative nature is discovered. But it is not too much to expect that by the latter half of this century the disease will die out as a result of the destruction of infectious material.

CAUSES FOR DECREASE.

We come now to the consideration of the really important part of this subject. It is plainly evident that we have less consumption than twenty years ago. Why?

It seems to the reader the reasons may be summed up in the one word, education. Different observers give various reasons, but when we examine these explanations we find they are practically all a result of a better knowledge of the conditions under which tuberculosis thrives and an attempt to change those conditions.

An observer in England considers the decreased death-rate from tuberculosis there to be the result: (1) Of "generally improved sanitary conditions and food standards among the working classes;" (2) to the "segregation and isolation afforded by chest and general hospitals."

The same observer attributes the phenomenal decrease in the death-rate in Prussia to three causes:

(1) "The discovery of the tubercle bacillus, and the spreading of the knowledge of the infectious character of phthisis."

(2) "The greatly improved general condition of the working classes brought about by the operation of the Workman's State Insurance Laws."

(3) "The establishment of sanatoria," although at the time he wrote this was too recent a movement to have had much effect.[4]

Professor Koch is quoted as stating that the chief factor in his opinion has been the knowledge of the infectious character of phthisis and the precautions gradually brought into practice even among the lower classes in Germany against it. He thinks, however, that from a preventive point of view neither England nor Germany has as yet provided to a sufficient extent "the most essential of all institutions — the institution for advanced cases." [5] He says further: "Early cases of tuberculosis, where tubercle bacilli occur in the sputum, are a danger, but the danger from them is trifling compared to the danger arising from the advanced and fatal cases." He goes on: "In all other infectious diseases we attack infection at its source. Cases of smallpox, of leprosy, of diphtheria, of plague, are isolated, but cases of tuberculosis in their last stages, the most deadly stage of the most deadly disease of all, are still allowed throughout Europe to spread further infection broadcast in the midst of their already destitute families. This fact does not yet seem to be learned; when it is, and when we have these homes for the hopeless cases adjoining every city, then tuberculosis will pass from the midst of us."

INFECTION.

In spite of careful investigations into the infectiousness of tuberculosis, the study of cases known to have been contracted from relatives, and the more frequent cases which are not so easily traceable to any certain source of infection, but are more or less reasonably considered to be the result of association with tubercular persons, there are writers of note who doubt the wisdom of classing tuberculosis as an infectious or contagious disease. They split hairs over the words, and prefer communicable as more in accord with the facts.

West says: "Being a germ disease, phthisis is in the nature of things infective, *i. e.*, communicable; that it should also be infectious in the common acceptation of the term is also possible, but does not necessarily follow. Whether it really is infectious or not cannot be assumed, but must be settled by evidence and not by presumption."[7] He believes that the inhalation of particles of dried sputum is the ordinary mode of infection in man. He quotes the experiments made by different investigators to determine the infectiousness of dust, of sputum in a moist state, and of the breath without sputum. Finally he discusses the question of "whether phthisis is catching — that is to say, whether it is communicable from the sick to the healthy." He says, "The question narrows itself to this. What evidence have we that phthisis may be conveyed to a healthy person by the inhalation of the breath of a phthisical patient? The bacilli have been found, it is true, in the air expelled, but careful observation has shown that they do not exist in the air as such, but in the particles of sputum thrown into it by coughing."[8]

It is rather difficult for one, whose ideas of infection, contagion and communicable are not narrowed down to the inhalation of a patient's breath, to treat these statements of even so eminent a writer as Dr. West, seriously. It seems to the reader that the admission of the possibility of contracting the disease from the dried particles of sputum is sufficient evidence that the disease is infectious, or, if you prefer, communicable.

Because he cannot demonstrate as clearly as might be possible in a case of smallpox, that infection in a given case was due to association with a given person who had the disease, Dr. West concludes:

(1) "That, though a communicable disease, phthisis is either not at all, or else in a very limited sense, contagious, and that the risk of direct infection from the sick to the healthy is very small."

(2) "That inhalation is probably the common mode of infection, and that indirectly through infected dust with which the air is laden." [9]

Flugge and Heyman conducted a series of experiments to determine the mode and danger of infection from consumptive persons. They collected the spray thrown out by coughing from numbers of patients, and found that some of the drops contained tubercle bacilli; that this injected intraperitoneally into guinea pigs gave positive results in many cases. (In one experiment four out of nine pigs were found to be infected.) A more interesting experiment was to "fix Guinea pigs with their heads facing the patients at a distance of 20 to 45 cm. every other day for three hours. Out of twenty-five pigs two died in four weeks, two in seven weeks, one in two months, and one in four months (six in all), all showing symptoms of inhalation tuberculosis."

Flugge, basing his opinion on these and other experiments made with dried sputa, maintains that while tuberculous dust derived from pulverized sputa is a source of infection, the cough-sprayed minute drops of a consumptive patient in an advanced stage are even more so. And this he affirms because experiment has shown that the quantity of sputum dust which under ordinary circumstances is pulverized small enough to float and be capable of inhalation is very small. [10]

Professor Koch condemns strongly the placing of other cases side by side with those of advanced consumptives in a general hospital. But considers the danger much greater in a "small confined room where the bacilli, virulent and minute, continue to be sprayed into the atmosphere."

Cornet, in the volume on Tuberculosis, Nothnagel's Practice, gives his own experiments on the modes of invasion. It would seem as though he has tested every possible avenue of entrance to the body. He concludes from his experiments that, "Tubercle bacilli, which have invaded the organism, regularly develop at the site of invasion or in the next set of lymph glands (law of localization). . . . Tubercle bacilli are capable of penetrating a macroscopically uninjured mucous membrane, in rare cases even the skin, especially if they are brought into close contact therewith by inunction. . . . All the organs [he tested] showed tuberculous changes if brought into suitable contact with the organism."

"The theory of a special predilection on the part of the lung for tuberculous poison finds no experimental confirmation. . . . The degree of frequency depends not upon an inherent peculiarity of the organ, as the expression predisposition would seem to indicate, but upon external conditions; it is controlled by the distance of the organ from the site of infection, and upon the mode of infection." [10]

The writer explains the difficulty of demonstrating the source of infection in most cases when the infection occurs naturally. This is due to the long period of time which elapses after the infection before the disease manifests itself. "It is this circumstance which makes plain why the infectious nature of tuberculosis was so long a matter of dispute." [11]

Cornet, while emphasizing the infectiousness of pulmonary tuberculosis under favorable circumstances, and the need for preventive measures, just as clearly shows how slight the danger of infection may be, provided proper precautions are taken. He says, "that the statement every man lives to some extent in a community of the tuberculous is without foundation." He also declares that statements concerning the number of persons infected at some time by tubercle bacilli which conclude that at least a third of the race is tuberculous are fallacious, founded upon erroneous deductions from statistics. [16]

"The chances of association with the tuberculous vary according to age — the child from one to five years evidently comes into direct contact only with its parents, its relatives, and the domestics. If these are healthy the child itself runs no risk of infection."

"From the sixth to the fifteenth year during which the child goes to school, the circle becomes widened so as to embrace the other children of the same class, numbering 30 to 40, and the teacher. . . . There is only one tuberculous individual in nearly 1,000 living children of the age of five to fifteen years, and this one individual imperils only his immediate environment, *i. e.*, 6 to 8 children."

"From the twentieth to the thirtieth years the extent of an individual's acquaintanceship will vary enormously according to the occupation and sex; but as a rule the number of persons with whom we come into close and continuous contact will hardly be found to exceed 8 or 10. . . . According to one table there is on the average one tuberculous individual among about 85 males and 109 females, ranging in age from twenty to sixty years; but this one case is a source of great danger only to his immediate neighbors."

"The exposure to infection is, therefore, less general than is ordinarily supposed; it is false to premise, as is done in almost every debate upon tuberculosis, that every person comes into frequent contact with the tuberculous, and would long since have been infected if the disease were really so transmissible." [17]

This question of infectiousness has naturally claimed the attention of the boards of health of our large cities.

Dr. Biggs believes in boards of health exercising supervision over, not only the ordinarily accepted infectious diseases, but over such diseases as are to a greater or less extent preventable; this supervision to be of such a character as not to annoy the patient or his friends. He gives the rules of the new code of the New York Board of Health relating to the infectious diseases. This subdivides infectious diseases into three classes:

(*A*) "Contagious (very readily communicable), — Measles, rubella (rotheln), scarlet fever, variola (smallpox), varicella (chicken pox), typhus fever, relapsing fever.

(*B*) "Communicable, — Diphtheria (croup), typhoid fever, Asiatic cholera, *tuberculosis* (of any organ), plague, tetanus, anthrax, glanders, epidemic cerebrospinal meningitis, leprosy, infectious diseases of the eye, puerperal septicemia, erysipelas, whooping cough.

(*C*) "Indirectly communicable (through intermediary host), — Yellow fever, malaria." [18]

This classification gives the board such authority as it needs to properly supervise the diseases named. In this classification, however, there is no splitting of hairs over the words, infectious, contagious and communicable. All the diseases are infectious, all are communicable, varying only in the degree.

SUMMARY.

(1) Statistics of tuberculosis show conclusively a marked decrease in the death-rate during the last twenty years. For the countries whose statistics were available, it is not too much to expect that tuberculosis will die out in this century.

(2) The most careful investigators are agreed that tuberculosis is directly communicable from one person to another. They consider the dried sputum a source of danger, but the spray from a coughing, sneezing patient in the last stages of consumption they consider a much greater source of danger. They consider a hospital for the consumptive poor when in the last stage to be a necessity if we are to prevent the spread of the disease most effectively.

(3) With proper precautions the danger of infection from a consumptive may be reduced to almost nothing.

BIBLIOGRAPHY.

[1] U. S. Census, 1890 and 1900, Vit. Statistics.
[2] A. Hillier, M.D.: Public Health, March, 1903, p. 301 *et seq.*
[3] Mass. Reports, Births, Marriages, etc., 47th, 49th, 59th. Also Abbott: The Decrease of Consumption in New England.
[4] A. Hillier, M.D.: Public Health, March, 1903, p. 302.
[5] Ibid., p. 303.
[6] BOSTON MED. AND SURG. JOURN., June 30, 1904, p. 696.
[7] S. West: Diseases of Organs of Respiration, p. 427.
[8] Ibid, p. 428.
[9] Ibid, p. 437.
[10] Nothnagel's Encyclopedia of Prac. Med. (Tubercul. and Miliary Tub., p. 104 *et seq.*)
[11] Ibid., p. 108.
[12] Ibid., p. 111.
[13] The Prevention of Consumption, A. Hillier, p. 25, *et seq.*
[14] Public Health, March, 1903, p. 305, *et seq.*
[15] Ibid., 1903, p. 307.
[16] Nothnagel's Encyclopedia: Tuberculosis, pp. 248, 249.
[17] Ibid., pp. 252, 253.
[18] BOSTON MED. AND SURG. JOURN., June 23, 1904, p. 670.

PULMONARY CONGESTION AS A CAUSE OF SUDDEN DEATH.*

BY W. W. MINER, M.D., WARE, MASS.

I HAVE met with severe and extensive congestion of the lungs in post-mortem examinations of three persons who died suddenly. They were not considered, by those associated with them, to be in any danger of the approach of death. One of them was a young man in vigorous health, one an elderly man in fair condition, and one a strong man who had a severe cold but was walking about as usual. Three hours later his dead body was found at the foot of a stairway where he had fallen. There were no ante-mortem symptoms noticed in two of these cases that attracted any particular attention. The strong young man, however, said he did not feel well after felling some small oak trees, and he dropped dead while leading his horse homeward with the fuel he had cut down and loaded on his wagon. I certified that in these cases the cause of death was congestion of the lungs, not being able to find any other sufficient cause, and the autopsies in each case showed to me ample cause of death in the remarkably congested condition of the lungs, which had been of very short duration.

CASE I. Francis K., seventy years of age, on Nov. 30, 1900, was found dead lying on a sofa in a sitting room at the house of an acquaintance when the family arose in the early Sunday forenoon. He had passed the night on the sofa with some covering over him in a cold room. Together with the man and woman in whose house he was found, he had been indulging in intoxicating liquors on the previous evening. The woman had a badly bruised and swollen face and was in a semi-stupid condition. An autopsy was held. He had contused places on the right side of his forehead, also a contused spot over nasal bones of triangular shape, one third of an inch in diameter, with dried blood on it. The skin was dried and stiff on bridge of nose. There was another contused spot on skin of nose, one-third inch in diameter. There was no blood in the interior of the nostrils.

His pericardium contained one-half an ounce of fluid of normal quality and the pericardial cavity was normal. The heart was normal and each cavity contained a very little dark blood; the valves and coronary arteries were normal.

The pulmonary pleural membrane was very firmly adherent to the costal pleura on both sides of the thorax at the upper portion and had whitish patches of thick fibrous character. The upper lobes of the lungs on both sides were extensively and firmly adherent to the walls of the chest and were of a grayish color and contained several calcareous nodules, giving evidence of some former chronic inflammatory or tubercular disease. There were no suppurating foci in the lungs and no accumulation of grayish gelatinous material or yellowish mucus, so that it was not considered that there was an active tubercular or destructive process going on in the lungs. The greater part of the lungs were uniformly dark and congested and the tissues and air passages of the lungs were thoroughly occupied by darkish fluid blood, giving evidence of acute pulmonary congestion which was considered by those present to be the cause of death.

The spleen was small. The venous system of the small intestines was congested. The liver was of normal size, but showed fatty degeneration. His right kidney was smaller than normal and had a cyst at its apex containing one and one half ounces of fluid and showed fatty degeneration. The left kidney appeared normal. The bladder was thickened and held about six ounces of urine.

CASE II. Michael P., twenty-three years of age, on Sept. 18, 1903, dropped dead in the road while leading a horse which was drawing a load of four-foot long pieces of oak wood fuel from the region where it had just been felled and cut into lengths by this young man. He was of Polish birth, strong and vigorous, and no suspicion of previous disease or disability was entertained by his brother with whom he was boarding. He had been discharged from employment in a factory a day or two before for some slight misconduct and was apparently quite anxious to earn his board and offered to go to his brother's lot and procure some fuel which was then a scarce article. His axe, judging from the cut surface of the wood, was not in the best condition of sharpness for the work of cutting green oak trees. Two young men joined him where he was cutting, and after a while he said he was not feeling well and would go home. They assisted him to some extent but did not realize in the least that his death was impeding.

At the autopsy nothing abnormal was found in the condition of his brain and its blood vessels or in the pericardium or heart. The cavities of the heart were nearly empty. Both lungs were throughout very deeply congested and of dark bluish red color externally and presented the character of severe congestion on section of different portions. No other lesion of the lungs was present. His face did not show any lividity or his surface generally. His bladder was contracted. His kidneys were congested, otherwise normal, and the weight of both was fourteen ounces.

His stomach contained about eight ounces of partly digested food and was largely liquid in character. There were streaks of congestion and hemorrhagic effusion in the walls of the stomach but the general appearance of the lining of the stomach was normal. The spleen and liver were found normal. There was nothing in the character of the stomach contents that excited any degree of suspicion. His mouth and fauces were in normal condition. There was nothing in his general appearance that justified any idea of poisoning or of any pre-existing disease. The congested condition of his lungs was considered the cause of his death and was thought to be the result of his anxiety to earn his board by the amount of fuel he could bring home. The physical effort required, with the poor condition of his axe, made such an amount of over-exertion as to cause pulmonary congestion and death.

CASE III. Eugene B., thirty-seven years of age, was found dead at the foot of a cellar in May, 1904. His head was bent forward on his body which had apparently

* Read at the annual meeting of the Massachusetts Medico-Legal Society, June 7, 1904.

fallen headlong the length of the stairs and it was at first thought probable that a fracture of the neck was the cause of his death. His wife said he had been having a severe cold for several days previous and he had not gone to his work but was walking about everywhere, ate pretty well, was a drinker, and his condition did not impress itself on his wife as being worthy of any special attention. She left home about 3 P.M., when her husband was working about the yard and when she returned about supper time, her husband was found to be absent. His body was discovered at 7 P.M., by a lady living in the same building who searched for him.

After careful examination no fracture of the neck could be found. There was nothing obtained by external inspection that pointed to the cause of his death. He was said to be in the habit of going on sprees in the use of intoxicating liquor and it was feared that the last rites of the church at his funeral would be denied.

An autopsy was arranged for, at which it became evident that the congested condition of his lungs was the cause of his death. His lungs had only one area of about three inches in diameter which had anything of the normal grayish color. His heart contained a moderate amount of dark clotted blood; no other indication of abnormal condition of heart or pericardium. His pleural cavity showed some amount of fluid effusion. His stomach showed something of the effect of alcoholic liquors. His liver was enlarged and of the fatty, nutmeg variety. His kidneys showed some fatty degeneration. There was not that amount of evidence of pleuro-pneumonia which would be looked for in one who had been known to have been suffering from that disease. It was considered that his vital powers had been debilitated by his habits of work and use of liquors and that an attack of la grippe had rendered him susceptible to the congestion that terminated his life so suddenly.

In order to assure myself as to whether this source of sudden death had been recognized by others as occurring, especially after violent exertion, I inquired of Dr. M. H. Davitt, a veterinary surgeon who had studied with Dr. Salomon in the U. S. Government Department of Animal Industry, if he had known this condition being found in horses at post-mortem, and he informed me that it was not infrequent and was found not only in animals which had been overdriven, but also in those which were quartered in damp, dark or unhealthy stables, which might cause debility and inability to resist attacks of disease. I have not found very much in the works I have consulted bearing on the occurrence of this cause of sudden death in the human being. I, therefore, desire, with your consent, to present some extracts from a volume on veterinary medicine which was brought to my attention.

Dr. William Robertson, F.R.C.V.S., and late principal of the Royal Veterinary College of London, in his textbook entitled "A Textbook of the Practice of Equine Medicine," says in treating of pulmonary congestion or pulmonary apoplexy as occurring in horses as follows:

"*Nature and Causation.* — Congestion of the lungs, or engorgement of the vessels of the pulmonary tissue by unnatural collection or detention of blood there, may occur in the horse and all animals as a precursor and accompaniment of inflammation in pulmonary structures; also in other local or general diseased conditions, as in some cardiac affections, enteric diseases, arthritic inflammations and in some special epizootics.

"In addition, however, congestion or collection to repletion of blood in the pulmonary vessels occurs as an independent or distinct condition, which is that to which we now chiefly refer, and which we mean to indicate when not qualified by any accompanying term explanatory of its origin or association. When of an acute character and accompanied with capillary hemorrhage, it is sometimes spoken of as a pulmonary appolexy.

"This state of hyperemia or hemal engorgement is recognized as: (1) Acute or active; (2) passive or mechanical. The former is the manifestation which we most frequently encounter and most readily recognize. *Active congestion* in the horse is most frequently the result of (1) increased cardiac action, without or apart from relative resisting power in pulmonary vessels; (2) all agencies which at other times or with other subjects develop bronchial or common catarrh. *Passive congestion* is encountered under conditions associated with retarded venous circulation or depressed heart-action, as in mitral and some other cardiac disturbances, and in general exhaustion attendant on some fevers and debilitating diseases.

"*Anatomical Characters.* — The after-death appearances appreciable by the eye in the lung tissue of horses which have fallen victims to a serious invasion of pulmonary congestion, are perfectly characteristic.

"There is distention and general engorgement of the pulmonary vascular system with dark fluid blood, with occasionally irregularly distributed circumscribed hemorrhagic effusions from rupture of minute and capillary vessels. The lungs are swollen — pulmonary edema — of a dark color; the crepitant character which so distinguishes healthy lung tissue is not gone but diminished. It feels to contain more liquid than air. Although heavier than natural, its normal elasticity and spongy texture are not so much destroyed that it will not float in water, in this respect differing from the consolidation of pneumonia, the condition of red hepatization to which in many respects it bears a resemblance. This state of splenization of lung structure, as the result of pulmonary engorgement has been called from its resemblance in physical character to the spleen, has, when excised, a dark red color, with occasional spots of a deeper hue marking the points of blood effusion, and from the cut surface there is an oozing of bloody serous liquid mingled with mucus, and rendered frothy from the entanglement of air.

"The entire structure is from the engorgement and distention rendered more friable than natural, less so, however, than in the more advanced stage of hepatization. The lining membrane throughout the entire tract of the air tubes, particularly the bronchi, is heightened in color, and covered with frothy mucus. In no parts do we find effusion, save of serous material; the char-

acteristic plastic exudation of inflammatory action being as yet undeveloped.

"In the examination after death of animals which have died from pulmonary congestion, a mistake very commonly made by non-professional observers is to regard the dark-colored friable condition of acute engorgement, with its softened, damp appearance tending to putrescence, as indicative of a diseased condition of some time standing; whereas we know that the opposite is the direct conclusion to be drawn from these conditions. Darkness of color, with softness and liquidity of texture, without the presence of organized or plastic and organizable exudate, may be accepted as the condition of pulmonary congestion, a state which may develop itself in any animal previously apparently healthy, in less than an hour. Both sides of the heart, but particularly the right with the large vessels proceeding to and from it, are more or less full of dark-colored, rather viscid but not coagulated blood.

"The cases of congestion which have terminated fatally connected with *other diseased conditions* — passive congestion chiefly — *rarely present* so *characteristic lesions of the hyperemic state* as those which are the result of over-exertion in perfectly healthy animals. The lung tissue is in these not so dark in color, more crepitant, with a greater quantity of frothy mucus in the air tubes; while from the state of the minute bronchi in particular, we are disposed to believe that a certain amount of capillary bronchitis is very often associated with these attacks."

Professor Osler, in his "Practice of Medicine" makes this statement regarding pulmonary congestion: "The occurrence of an intense and rapidly fatal congestion of the lung following extreme heat or cold or sometimes violent exertion, is recognized by some authors. Renforth, the oarsman, is said to have died from this cause during the race at Halifax. Leuf has described cases in which, in association with drunkenness, exposure and cold, death occurred suddenly, or within twenty-four hours, the only lesion found being an extreme, almost hemorrhagic, congestion of the lungs. It is by no means certain that in these cases death really occurs from pulmonary congestion in the absence of specific statements with reference to the coronary arteries. Several times in sudden death from disease of these vessels I have seen great engorgement of the lungs, though not the extreme grade mentioned by Leuf. I have no personal knowledge of cases such as he describes."

Butler, in his work on "Diagnostics of Internal Medicine," refers to pulmonary congestion as of two forms, active and passive. He says under the heading of active congestion: "In the great majority of cases, active hyperemia is a symptom or associated condition in connection with certain pulmonary diseases, such as bronchitis, pneumonia, tuberculosis, or pleurisy. In certain instances it is possible that it may occur as a primary and independent affection, which may quickly disappear or be followed by edema, or, in rare cases, by reason of its intensity, terminate in death. This condition results from drunkenness and exposure to severe cold or great heat, or from violent exertion.

"The symptoms are rapid breathing, cough, blood-tinged frothy sputa, somewhat harsh respiration, with fine moist rales, and an absence of fever, unless some febrile or inflammatory condition coexists. The diagnosis of this condition, aside from pulmonary edema and abortive pneumonia, must be made with caution."

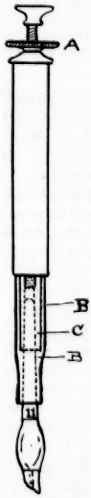
Brouardel advises caution in determining pulmonary congestion as the orgininal cause of sudden death.

New Instrument.

A DEVICE FOR GREATER ACCURACY OF DILUTION IN THOMA-ZEISS PIPETTES.

BY A. D. DRAPER, M.D., BOSTON.

IN counting leucocytes and red cells by means of the Thoma apparatus I have many times thought that a more accurate method of drawing the diluting fluid to the proper mark would be most acceptable, and I therefore have devised the contrivance represented below.



It consists of an ordinary hypodermic syringe with a screw thread on the piston rod, to which has been added a "knurled" nut (A) to enable the operator to very gradually raise the piston; a metal tube (C) which is reamed at one end to receive the white or red pipette, the other end having a thread cut in it to screw on to the syringe, and lastly a rubber tube (B) which fits snugly over both pipette and metal tube, making a tight joint and holding the former in place.

This device has proved in my experience to be much more accurate than the rubber tube and suction, the dilution being regulated to a nicety; and in addition the objectionable features of cleansing and drying are eliminated; and finally the possible risk of infection from the rubber tube is abolished.

Clinical Department.

REPORT OF CASES FROM THE SURGICAL SERVICE OF THE CHILDREN'S HOSPITAL, BOSTON, MASS.

SECOND SERIES.

BY DRS. H. L. BURRELL, H. W. CUSHING AND J. S. STONE. REPORTED BY DR. J. S. STONE.

TUBERCULOUS ULCERATION OF THE LOWER ILEUM. PERFORATION. PERITONITIS. OPERATION. DEATH AT THE END OF FIVE WEEKS.

A BOY, aged fifteen months, was admitted to the medical service of the Children's Hospital on May 6, 1903.

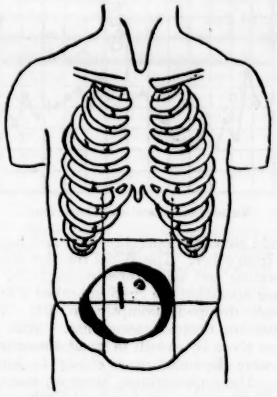
The family history was good except that one aunt had died of consumption and another child had died of convulsions when three weeks old. The child had never been sick till two months before entrance. He had been breast fed for eight months, afterward having bread and milk, oatmeal and egg.

Seven weeks before entrance he caught cold and had a cough ever since. During this time he lost flesh and color. A month before entrance the mother noticed tenderness of the abdomen when the child was touched or moved. Since then the abdomen had grown slowly but steadily larger. The child had taken food well, having vomited once, a week before entrance. The bowels had been regular till two weeks before entrance; after that they had been constipated. Every afternoon the child had become feverish. The abdomen had grown more tender. The child had lain on the side with the knees drawn up. The cough, the constipation, the abdominal tenderness and swelling were the symptoms for which the mother sought relief.

Physical Examination. — Well developed and nourished; expression, bright; skin and mucous membranes, pale; mouth and throat, normal; respiration, not notably fast. A rosary and slightly open fontanelle were the only signs of rickets. The lymphatic glands were not enlarged. The lungs were normal. The heart was normal, except for a soft, systolic murmur over the whole precordia, loudest in the second left interspace The pulse was regular, of good tension and volume. The abdomen was markedly distended and tympanitic throughout. It was tender, but nothing abnormal was felt, though it was too tense for satisfactory examination. The greatest resistance was on the left side at about the level of umbilicus. It seemed to be muscular. The blood examination showed hemoglobin 80%, and a leucocytosis of 26,300.

After admission the abdomen remained tense. Most of the time the child sat up in bed bent forward. The amount of pain increased. The child grew worse. The temperature was usually subnormal in the morning and high later in the day. The leucocytosis increased to 53,000. The iodophilic reaction became marked.

On May 13, a week after entrance, the child was transferred to the surgical service. The child was pale; the expression pinched and anxious. Respiration was shallow. The abdomen was greatly distended. There was marked dullness in the right flank and in the lower umbilical and right iliac regions. The rest of the abdomen was tympanitic. There was marked muscular spasm, greatest in the region below and to the right of the umbilicus. A resistant mass could be felt extending from the right hypochondrium downward and inward to a point an inch above the umbilicus, and then downward and to the left until it gradually disappeared. About half an inch inside the anterior superior spine on the right another mass could be felt extending downward and inward parallel to Poupart's ligament until it became gradually lost. Connecting these two areas could be traced less distinctly the borders of the area of greatest resistance. The outline of the mass is indicated in the diagram. The edges could be felt most plainly where the shading is heavy. There was dullness over the mass except that the center was tympanitic.

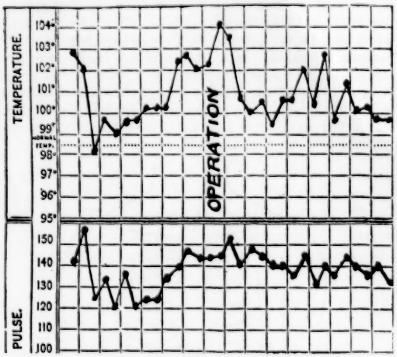


Tuberculous ulceration of lower ilium.

The diagnosis made was peritonitis, probably general, originating in the right iliac fossa, probably from the appendix.

The child was operated upon at once. Under ether the mass could be felt somewhat more distinctly than before but no further light was thrown on the diagnosis. An incision an inch and a half long was made just inside the outer border of the right rectus, the upper end of the incision being at the level of the umbilicus. The rectus was retracted and its posterior sheath was found to be edematous. This was cut through carefully. The underlying peritoneal fat and the peritoneum were very edematous. The dissection was carried down carefully, until there was a gush of about four ounces of brownish yellow liquid feces and considerable gas. It was thought that the bowel might have been opened but on enlarging the incision a firmly walled off cavity was found, surrounded as far as could be seen by coils of small intestine. The finger passed directly inward came at a depth of an inch and a half to a loop of small intestine running transversely. In the upper side of this was a round perforation about the size of a lead pencil. The edges of this were clean cut, slightly pouting, and made up of the swollen congested intestinal wall. The finger could be passed directly backward and slightly downward into a pocket among the folds of the mesentery. Another pocket led upward immediately above the perforation. No enlarged glands were felt. The peritoneum which could be seen was red and congested. There was comparatively little fibrin, the adhesions were firm, the amount of pus was relatively small compared with the amount of feces which came out from the cavity.

Feces and a few particles of undigested food were freely discharged during the operation. The cavity was wiped out and gauze wicks were inserted into each of the pockets mentioned and down to the perforation. On account of the swelling, the friable condition of the bowel, the firmness of the adhesions, and the depth of the seat of perforation, no attempt was made to close it.



Tuberculous ulceration of lower ilium.

The child stood the operation well and made a good recovery from ether. The Widal reaction was negative after operation and again three weeks later. For two weeks after operation the child improved a little. The temperature dropped promptly to 100. The pulse and respiration dropped somewhat. Milk and lime water were given by mouth in small amounts. Rectal enemata were depended upon chiefly to keep up the nutrition. The improvement, however, was only temporary. There was a very free fecal discharge from the wound, often formed, though at other times, loose and containing much mucus. At the end of two weeks the child began to go down hill again. The enemata were not retained and were abandoned. The child did not take food well, and changes in the diet made but temporary difference in this respect. After three weeks the discharge from the wound consisted practically entirely of well-formed, well-digested feces. After an interval the enemata were renewed but they were not retained after a few days.

The loss in flesh and strength went on more rapidly. At the end of five weeks signs suggesting an inhalation pneumonia developed. The respiration jumped up from 40 to 60. A week before the pulse had risen from 120 to 160. The child continued to fail and died on the thirty-ninth day after operation.

When the child ceased to gain after operation the advisability of further interference was carefully considered. The increasing weakness seemed to be due much more to the disease which caused the intestinal perforation than to inanition resulting from deficient absorption from the intestine. It was thought that the perforation was low down in the ilium; first, because the feces which escaped were formed; and second, because there was no digestion of the skin or other tissues about the wound. The location of the perforation in the right iliac fossa in a transverse fold of small intestine was also consistent with this belief. Suture of the edges of the perforation was thought useless because of the friable condition of the bowel. A radical resection in the presence of the firm adhesions and numerous pockets seemed impossible because of the poor condition of the child. An intestinal anastomosis seemed to offer no hope of bettering the disease.

As a full autopsy was not permitted, an examination was made through the wound. There was no digestion of the tissues about the wound, but they were distinctly friable. The abscess cavity was found to extend on the right as far as the anterior superior spine, downward behind the bladder into the pelvis and in front of the intestines, on the left as far as the anterior superior spine. Deep in there were pockets off the abscess cavity extending among the folds of the mesentery. On the right a pocket reached up toward the liver just to the right of the gall bladder. The abscess cavity was lined everywhere by thick, fine adhesions between the folds of intestines. They were broken with great difficulty. Elsewhere the whole peritoneal cavity was obliterated by chronic peritonitis. There was no free fluid anywhere except in the abscess cavity. The intestines were not distended but were normal in size, and except for the obliterating peritonitis no gross lesions were seen. The cecum and ileo-cecal valve lay posteriorly to the abscess cavity. The appendix, which lay immediately below the head of the cecum, was coiled in an S-shape just outside the iliac vessels. It was normal. The lowest coil of the ilium just above the ileo-cecal valve ran first transversely, then turned upward, and back on itself to the right. In this second fold at a point about four inches above the ileo-cecal valve was a perforation which involved about two thirds of the lumen of the gut opposite to the mesenteric attachment. The size of the perforation varied with the position in which the gut was held but obviously it was nearly as large as the lumen of the gut. Below this perforation and above the ileo-cecal valve the gut was congested and thickened. In this thickened bowel were three areas in which the intestinal wall was extremely thin, soft and very red. These were evidently ulcers which had not yet perforated. The mesenteric glands were much enlarged. Above the perforation the ileum showed no gross lesions aside from those incident to the obliterating peritonitis. The sigmoid flexure made up the posterior wall of the abscess cavity on the left. The top of the ascending loop was firmly bound down posteriorly at a point just below the left kidney. The descending loop and descending colon lay outside of and in front of this and made up the left side and posterior wall of the pocket of the abscess on that side. The spleen was normal in size and appearance, the kidneys were congested but otherwise showed no gross lesions, the liver showed nothing aside from the perihepatitis, chiefly in the region of the gall bladder. The pancreas was normal. The stomach was normal. The peritoneum about the stomach had not been entirely obliterated; it was found comparatively normal. The omentum was thickened and closely adherent to the small intestines just below the transverse colon. There was some pus in the pockets, especially toward the liver, but liquid and solid feces seemed to be the chief contents of the main part of the abscess cavity. The lower ileum, the ileo-cecal valve, appendix and head of the cecum were removed entirely and pieces of the spleen, liver, left kidney, and some of the mesenteric glands were also removed for examination. The report of the pathologist, Dr. Mallory, showed tuberculosis of intestine, peritoneum and mesenteric lymph nodes.

In looking back on the case, the pathological conditions proved to be substantially what they were thought to be during life. The very widespread obliterating peritonitis was not suspected. When first admitted to the hospital the symptoms suggested strongly a tuberculous peritonitis. The perforation led to symptoms which suggested

appendicitis. The operation corrected this mistake. The suspicion of typhoid fever with perforation was then very great and was eliminated only by the subsequent course of the disease and the continued absence of the Widal reaction. An acute inflammatory perforation of the small intestine, it was thought, would probably have tended to heal spontaneously if the abscess cavity was drained. Finally by elimination the diagnosis was made of tuberculous ulceration of the lower ileum with perforation and localized peritonitis.

The reluctance to attempt surgical interference after the first operation was more than justified by the post-mortem findings. The extent of the firm adhesions about the walled-off abscess cavity would have made intestinal resection practically impossible. The obliterating peritonitis, which was not diagnosed, would have made operative relief impossible.

The only surgical measure which could have saved the child's life would have been a resection of about eight inches of the ileum immediately above the cecal valve. This, if done at the onset of the trouble, would in all probability have entirely removed the source of the disease. A careful examination of the bowel would have shown the areas of ulceration. In this particular case the tuberculosis was thought to be primary in the peritoneum rather than in large ulcers within the ileum. Had the surgeon found the ulceration in the course of an operation early in the course the temptation to regard the condition as typhoid fever and to close the abdomen would have been very strong indeed.

(To be continued.)

Medical Progress.

REPORT ON PEDIATRICS.

BY THOMAS MORGAN ROTCH, M.D., AND JOHN LOVETT MORSE, M.D.

(Concluded from No. 24, page 660.)

THE NORMAL VARIATIONS IN TEMPERATURE DURING THE FIRST YEAR.[7]

Jundell's investigations, based on more than three thousand examinations during the first year of life, showed a constant and gradually increasing amount of variation in the daily fluctuations of the temperature. These fluctuations were very slight during the first days of life, amounting to about .1° C. At the end of the first month they averaged between .25° C. and .30° C.; at the end of the second month, between .30° C. and .37° C., and at six months they reached the average of .57° C. From two to five years the average was .95° C., that is, somewhat greater than in adult life.

It is evident, therefore, that the usual assumption of great irregularity of the temperature in the first year is not justified. The temperature varies within narrower limits than has been supposed. It cannot be denied, however, that the temperature during the first year is more easily and more strongly influenced by outside influences than in adults. His observations show, however, that these fluctuations are not so great in healthy, well-cared-for children as has been commonly believed. It is evident, moreover, that the heat regulatory mechanism can accomplish more in healthy, normally developed children, even in the first days of life, than has been assumed.

THE RELATIONSHIP BETWEEN SEROUS PLEURISY AND TUBERCULOSIS IN CHILDHOOD.[8]

Baginsky's article in the *Leyden-Festschrift* is the only one dealing with this subject in childhood. Nathan saw 73 cases of idiopathic serous pleurisy in ten years. Fourteen of these had a direct tubercular family history; 52 had no such history. Other tubercular foci were found in but two cases. One of these had tuberculosis of the skin, the other clinical tubercular peritonitis. In the latter case a guinea pig injected with fluid from the pleura showed no signs of tuberculosis. Two and one half years later the child was well in every way and showed no evidences of tuberculosis. The sputum was examined in three cases, in none of which were tubercle bacilli found. The fluid was examined microscopically for tubercle bacilli in fourteen cases, in none of which were they found. Cultures were made in four cases, which were sterile in every instance. Animal experiments were made in ten cases. One of these children had a family history of tuberculosis. The guinea pig injected with the exudate from this child died after three months and showed extensive tuberculosis. The child was well a year later, but showed slight signs at the right apex which were not necessarily tubercular in origin. In the nine other cases the results were absolutely negative. Thirty-seven of these cases were seen at intervals of from one to ten years after the pleurisy, the average interval being four and one-third years. Only three showed evidences of tuberculosis. Two of these had tuberculosis of the lungs, and one tuberculosis of the hip. In two of the others tuberculosis was suggested.

He concludes, with Baginsky, that pleurisy, in children at least, does not stand in nearly so close a relationship to tuberculosis as has been assumed by many authors.

AN EPIDEMIC OF WHOOPING COUGH IN A WARD FOR PREMATURE INFANTS.[9]

During the time of the epidemic there were in the ward 44 premature babies, the oldest of which was six months, and 14 babies of the nurses, the oldest of which was ten months, and the others from one to six and one-half months old. Only 1 of the 44 premature infants had a true whooping cough; 3 of the others had slight coughs of short duration, which were not at all characteristic and in all probability were not whooping cough. Ten of the nurses' children contracted the disease,

and 7 of them had pulmonary complications. On account of the conditions in the ward, the exposure of the nurses' children was pretty thorough and constant. The premature infants, however, after the disease was recognized, were not directly exposed, but were nursed by the same women. The receptivity of the premature infants was therefore very slight. It was much greater among the infants of the nurses; those who escaped were among the youngest. It was noticeable that a number of infants who had not contracted the disease in spite of constant exposure, did contract it later when their resistance was lessened by slight indispositions. These young infants bore the disease better than older children usually do, and suffered less in their general condition.

Judging from these figures, it seems that the new-born are less susceptible to whooping cough than older children. These figures also seem to show that early infancy does not necessarily carry with it an unfavorable prognosis in whooping cough.

THE IDIOPHILE AND GLYCOSURIC REACTION IN WHOOPING COUGH.[10]

Crisafi found a marked idiophilia in 80% of cases of whooping cough. The idiophile granules rarely occurred in the lymphocytes, more often in the eosinophiles and chiefly in the polynuclear neutrophiles. He found that glycosuria occurred very rarely in whooping cough.

THE OPEN-AIR TREATMENT OF BRONCHOPNEUMONIA COMPLICATING WHOOPING COUGH.[11]

The death-rate in the Edinburgh City Hospital from whooping cough for the eight years ending in 1900 was 18.1%. The principal cause of death was complicating bronchopneumonia. Seventy-one per cent of the cases of bronchopneumonia complicating whooping cough died. Many remedies for whooping cough were tried in the effort to reduce the mortality. Belladonna seemed to be of some service. Most of the other drugs seemed to act as depressants. The treatment was then changed by keeping the children in the open air in a sheltered position, with the cots uncovered, for six hours daily, providing it did not rain. At night, on rainy days and in the winter, the patients were kept in a large airy ward with the windows open. The chief contra-indication for the open-air treatment was laryngitis. The good effects noted were increase of appetite and general strength, and diminution of irritability and cyanosis. The death-rate in the cases of bronchopneumonia was reduced one half after the outdoor treatment was begun.

ERYTHEMA CONTAGIOSUM.[12]

Under the name of "erythema contagiosum," Escherich has recently described cases of a disease which, in many ways, resembles the eruptive fevers of childhood. The name was first given to the disease by Stricker of Giessen, but Escherich states that he has observed it for a good many years, first at Graz, and later at Vienna. It would appear that the disease was at first confounded with German measles. The disease has an incubation period of from six to fourteen days, and appears in children who are subjectively well in the form of an intense redness and turgescence of the cheeks, which is often quite sharply limited by the naso-labial line, thus resembling erysipelas. Less frequently the eruption on the face is in the form of flecks or gyrate patches. In most cases there are also present on the forehead, the region of the ears, and on the extremities, scattered patches of bluish-red erythema which sometimes coalesce. The eruption lasts from six to eight days, and then gradually fades, first on the face, then on the extremities. There is no desquamation, and unpleasant sequelæ are not observed. From time to time there have been described in this country epidemics of atypical eruptive fevers, usually considered to be atypical German measles. It seems likely that the disease which Escherich describes may exist in this country, and it behooves the general practitioner, who is most likely to meet with such cases, to be on the lookout for it.

THE LIMITS OF THE ASSIMILATION OF SUGAR IN CHILDHOOD.[13]

He studied thirty-three children, from one month to thirteen years of age. His investigations showed that the limit of the assimilation of grape sugar in childhood is not influenced by the body weight, by the general condition of nutrition, or by diseases such as tuberculosis, syphilis, rickets, or anemia, but that, on the other hand, it is dependent on age. The limit of assimilation gradually increases with age, so that at the end of the first decade it has reached that of adults.

OBSERVATIONS CONCERNING THE CONTAGIOUSNESS OF MEASLES.[14]

Freund had an opportunity of observing an epidemic of measles in the Breslau Asylum for Children, which contained children of all ages. It was evident that the susceptibility to measles is very slight during the first year, because no child under nine months contracted the disease, although there was abundant opportunity for infection. It seemed to make no difference whether the children were breast or artificially fed. He concludes from his observation of two cases that measles may be contagious as long as fourteen days after the appearance of the eruption.

THE ALBUMIN CONTENT OF WHEY.[15]

Grulee prepared his whey with powdered rennet in the proportion of one grain to the quart. The whey was filtered through paper and to the filtrate acetic acid and ammonium hydroxid were added. The liquid was boiled until sedimentation was complete. The albumin was washed and dried repeatedly at 105° C. until the weight was constant. The average amount of albumin found in 24% of the examinations was .5013;

the lowest was .2929, the highest, .6616. He thinks that this percentage of albumin, which is much lower than that found by other observers, may be explained by the character of the rennet used or by the method of examination. He thinks that the difference in the method of examination would, in all probability, not account for the difference in the results. He thinks that the liquids used in the preparations of liquid rennets may inhibit the action of the rennet, and that with powdered rennet a much greater action is obtained.

He concludes that the kind of rennet used is the most important factor in the preparation of whey, inasmuch as it is responsible for the amount of casein curdled.

ON THE DIMINUTION OF CITRIC ACID IN MILK AS THE RESULT OF HEATING.[16]

Obermaier first calls attention to the supposed influence of sterilized milk in the development of scurvy. He states that when raw milk is substituted for heated milk in this disease the symptoms are relieved and that, even if the heated milk is continued and fruit juices are given, the same result is attained. He states that the one substance which is present both in raw milk and in the juice of fruits, and which is the curative agent in scurvy, is most probably citric acid. In order to determine whether the inferiority of heated to raw milk could be attributed to a diminution of citric acid, he submitted milk to varying degrees of heat, and found a loss of citric acid which increased progressively with the temperature at which the milk was heated. Thus, a milk heated for fifteen minutes at 75° lost 4.13% of its citric acid; one exposed to the same time to 100°, 14.47%, and one at 120°, 22.7%. It is probable that in raw milk citric acid exists in the form of a soluble citrate of calcium, and that this salt is oxidized by heat and precipitated in the form of the feebly soluble tricalcic citrate. He concludes by remarking that a temperature below 70° is preferable to sterilization which does not leave a sufficient quantity of assimilable citric acid in the milk.

THE ACTION OF FORMALDEHYDE UPON MILK.[17]

Trillet, suspecting that the addition of formaldehyde to milk made it less digestible, studied the comparative digestibility of the casein of pure milk and of milk to which various quantities of formalin had been added. The peptic digestion of the casein of milk to which formalin had been added left a residue 5% or 6% greater than that from pure milk. When the casein separated from milk by pressure was treated directly with formalin, the weight of the residue was increased as much as 30%. He put dried casein into a vessel above another vessel containing formic aldehyde. He found that the solubility of this casein in alkaline solutions diminished steadily, so that after twelve hours it was completely insoluble, and pepsin no longer acted upon it. This property of formaldehyde to diminish the digestibility of the albuminoids of milk is sufficient of itself to contra-indicate its use. Moreover, an accumulation in the organism to such a substance as the result of its daily use certainly ought not to be without danger.

ABSORPTION OF ALBUMINOIDS IN ALIMENTARY CANAL OF NEW-BORN.[18]

This experimental and clinical research shows that albumin foreign to the body, introduced into the alimentary canal, is absorbed comparatively unmodified. It can be detected again in the blood by means of the biologic test. The age limit up to which time this is possible was the seventh day of life in the experiments reported. When a very large amount was introduced, it could be detected in the blood even in somewhat older subjects. The experiments with puppies, kittens, rabbits, etc., were conclusive, and the eighth day was invariably the limit. In infants the age limit seems to be a trifle later. In case of a gastro-intestinal affection, inducing lesions in the alimentary canal, the absorption can occur likewise at a later age. The research further established that albumin thus absorbed induced the production of an antibody. This suggests that the administration of foreign albumin to a normal new-born infant, or to an older infant suffering from some gastro-intestinal trouble, is liable to do harm as it passes unmodified into the blood and starts the specific reaction on the part of the organism.

REFERENCES.

[7] Jundell: Jahrb. f. Kinderheilkunde. 1904, vol. lix, p. 521.
[8] Nathan: Archiv f. Kinderheilkunde. 1904, vol. xxxviii, p. 183.
[9] Porak and Durante: Archives de Médecine des Enfants. 1904, vol. vii, p. 321.
[10] Crisafi: Il Morgagni. 1903, no. 10.
[11] Ker: Scottish Medical and Surgical Journal, Jan., 1904, p. 33
[12] Escherich: Münchener med. Wochenschrift. No. 24, 1904. Editorial in Journal of the American Medical Association. 1904. vol. xiviii, p. 680.
[13] Greenfeld: Jahrb. f. Kinderheilkunde. 1903, vol. lviii, p. 666.
[14] Freund: Monatsschr. f. Kinderheilk. Bd. II, p. 75. Abstract in Jahrb. f. Kinderheilkunde, vol. lx, p. 106, 1904.
[15] Grulee: Archives of Pediatrics. 1904, vol. 21, p. 412.
[16] Obermaier: Arch. f. Hygiene. 1904, vol. l, p. 52.
[17] Trillat: C. R. Acad. d. sciences de Paris. 1904, vol. xxxviii, no. 1.
[18] Ganghofner and J. Langer: Münchener medicinische Wochenschrift. 1904, vol. li, no. 34. Abstract in Journal of the American Medical Association, 1904, xliii, 1182.

Reports of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

STATED MEETING, OCTOBER 10, 1904.

The President, T. E. SATTERTHWAITE, M.D., in the Chair.

Major J. L. POWELL, Surgeon, U. S. Army, read a paper on

MOSQUITOES AND MALARIA,

in which he gave the results of a series of investigations during the past summer at Fort Hamilton, N. Y., as embodied in a report which he had recently made to the Government. There had been quite a large number of cases of acute malarial fever among the troops stationed there, and mosquitoes were also abundant, but it was a fact that, notwithstanding the most diligent search, only a single specimen of the anopheles

variety was ever found. At the same time, there were conditions about the pest and in its vicinity which had formerly been regarded as sources of malaria, and he could not but believe, from this experience, that there were means other than the anopheles mosquito by which the poison was conveyed to the human system.

Dr. JOHN V. SHOEMAKER of Philadelphia read a paper on

TROPICAL MALARIA.

During and immediately after the Spanish-American War Dr. Shoemaker had an opportunity of observing some of the more severe forms which malaria exhibits in the tropics as it occurred among the soldiers brought to the Medico-Chirurgical Hospital. With the recognition of the plasmodium and the knowledge of its transmission by the mosquito, he said, our conceptions of malarial infection in its different forms have been rendered much more exact. We have also gained an immensely important advantage in the possession of absolute scientific tests for diagnosis.

The study of the plasmodium in its various phases has enabled us to devise the classification based upon purely clinical phenomena. The malarial paroxysm coincides with the sporulation of a group of the parasites contained within the red blood corpuscles. If the plasmodium is present in various stages of development, the discharge of the spores and toxins is irregular. Accordingly, the typical periodicity of symptoms is disturbed, and the fever assumes a remittent or continuous type. This was illustrated in Dr. Shoemaker's more severe cases. Most of them were distinguished by the severity of the symptoms and the irregular course of the fever. All were accompanied and followed by extreme prostration. According to the histories, many of the cases began more or less insidiously; in others the chill figured as a prominent initial feature. Sometimes, but not always, the fever was followed by profuse sweats. One interesting case displayed a chill every morning and every afternoon for two weeks, each chill being succeeded by fever and sweats. One patient went to sleep at night with a violent headache and awoke to find himself in a cold sweat which was followed by a chill and fever, a reversal of the ordinary succession. In many instances there was such a blending of succeeding paroxysms with the febrile rise and fall, that the record approached that of a continuous fever.

Several cases were accompanied by acute bronchitis. In a considerable proportion gastro-intestinal symptoms were marked; nausea and vomiting were common, and some of the men complained of much abdominal pain. Diarrhea or dysentery was met with in some instances; diarrhea in the beginning of the case, followed by constipation, was observed in many of the patients. In most of the cases the spleen was more or less enlarged; in some there was tenderness over the spleen without much increase in the size of the organ. In several of the cases there was a discoloration of the skin, varying from a sallow hue to the deepest jaundice, and testifying to the alteration of the hemoglobin by the malarial parasite and its liberation from the red cells. In many there was a decided diminution in the secretion of urine, which contained bile-pigment and was high colored. In several instances there was albuminuria and in one, hematuria. In two cases which bore a close resemblance to yellow fever the men lay in a state of stupor attended with low delirium. Many of the cases exemplified the great tendency to recurrence in this variety of malarial fever. After a defervescence of ten days to two weeks, the symptoms would return and run a similar course.

As there were being brought into the hospital at the same time about five times as many typhoid as malarial patients, it was necessary to be extremely careful in framing the diagnosis. Fortunately for accuracy we are no longer dependent solely upon clinical observation. The presence, on the other hand, of the Bacillus typhosus and the evidence of Widal's test, and, on the other, the detection of the malarial parasite, suffice to settle the diagnosis respectively for typhoid fever or malaria. The cases in which the skin was so discolored were distinguished from yellow fever by the longer continuation of high temperature and, above all, by the presence of the plasmodium malariæ in the blood. It is a happy circumstance that out of the three diseases, malaria, typhoid and yellow fever, in two we are in possession of absolute and scientific tests which certify to the differential diagnosis.

In the treatment quinine was the main reliance. In the worst cases, where the vomiting was so incessant that the drug could not be retained by the stomach, it was given by the rectum in suppository. As a rule, a five or ten grain quinine suppository was employed every two or three hours according to the severity of the symptoms, the endeavor being made to anticipate the paroxsym by the introduction into the system of as large an amount of the drug as possible. In cases with constipation, small, repeated doses of calomel, placed upon the tongue, produced movement of the bowels and at the same time served to allay the gastric irritability. When diarrhea was present, equal quantities of quinine and salol (usually five grains of each) were combined with good effect. When nervous symptoms were prominent, cannabis indica or monobromated camphor was combined with the quinine. If the bowel was irritable, an enema of starch water and laudanum was employed before the suppository was inserted. When the fever was high, the patient was sponged. Notwithstanding the profound malarial intoxication in some of the cases, happily none had a fatal termination. The principal points in this series, Dr. Shoemaker said in conclusion, were the gravity of the cases, the very marked and prolonged debility which the disease produced, resemblance of some to yellow fever and of others to typhoid, the diagnostic value of the scientific test, and the efficacy of quinine administered in the form of suppositories when the stomach is intolerant.

COL. VALERY HAVARD, Assistant Surgeon-General, U. S. Army, read a paper entitled:

IS MORTALITY NECESSARILY HIGHER IN TROPICAL THAN IN TEMPERATE CLIMATES?

It is a fact, he said, that mortality has been in the past and still is much higher in tropical climates. But is it because of the inherent and necessary effect of meteorological conditions and therefore inevitable, or is it perhaps mostly the result of the violation of sanitary laws, and therefore preventable? The statement of Cullimore that the mortality is greatest within the tropics and gradually decreases by a regular progression as we advance northward (from 40 per 1,000 from the equator to the 20th degree of latitude, to 20 per 1,000 from the 60th to the 80th degree) is open to so many exceptions that it is almost entirely useless as a practical guide to the study of the vital statistics of any country. The health of cities is the resultant of many factors, of which latitude is only one, and, in Dr. Havard's opinion, not the determining one. It is as yet impossible to state what should be the minimum mortality attainable by modern sanitary science. Taking, as a basis, the death-rate of the city of New York, 18.18 per 1,000 in 1903, we find that in Manila since the American occupation (1900–1903, inclusive) the rate has been 45.18. That of last year was 40.85,

showing an improvement. The rate for Havana during the decade preceding the Spanish-American War was 36. In the City of Mexico it is commonly about 40, while in India it often rises above 100.

During the year 1902 our army was almost equally divided between the United States and the far East. While at home the mortality from disease was only 5.66 per 1,000, in the Philippines (Filipino troops deducted) it was 20.85, or nearly four times as large, and for Filipino troops, 22.59. In 1903 medical officers in the Philippines had learned how to contend against the diseases which beset them, and the mortality fell to 11.14 for American and 18.17 for Filipino troops. It is in war time that disease mortality runs beyond all bounds in the tropics, owing to the rapid dissemination of epidemic infection among large bodies of men. Thus during our little war with Spain, the death-rate of 71 was reached in the month of September, 1898. The highest rates from disease in tropical warfare during the second half of the nineteenth century were noted among French troops in the Soudan in 1888–89, when out of each 1000 men, 280 died, and in Madagascar in 1895, when, to quote one of their surgeons, "everybody was sick and 50% died." In both of these expeditions the mortality appears to have been chiefly caused by malarial infection. It must, therefore, be recognized and admitted that up to the present day there has been a greater liability to sickness and death in the tropics.

As to the physical or meteorological elements of a hot climate capable of affecting health, they are chiefly two: (1) Great and continued heat. (2) A high degree of humidity. In the tropics the amount of sweat is enormously increased, the effects of which are a diminution of the total amount of blood and a decreased arterial tension. The urine is also much reduced, as well as the output of urea. In consequence of the excretory function of the kidneys being diminished, more work is thrown upon the liver. Skin and liver are thus liable to be more or less congested, while the lungs are depleted. As, furthermore, tropical air, through heat expansion, contains less oxygen than that of colder latitudes, the result is decreased metabolism. It is an obvious fact, however, that less oxygen is needed in the tropics, since the calorific process is much less active. The atmospheric humidity of tropical islands, though often great, does not always exceed that of our Southern Atlantic coast, and is sometimes less. High humidity prevents free evaporation of perspiration and must more or less interfere with the process concerned in heat generation and the active destruction and renovation of tissues, upon which depends bodily and mental vigor. Owing, however, to the constant air movements on tropical islands, this decreased evaporation is less than is generally supposed; so that, for instance, the average summer of Havana is less oppressive than that of Washington and all our southern cities.

The great central physiological condition of human health in the tropics is that the production of bodily heat shall be kept down within certain limits. Nature helps by diminishing the proportion of oxygen in the atmosphere, and we should assist by reducing the food, especially the calorifacient articles of diet. We may further assist by avoiding violent exercise and very active mental work. The result of this necessary tropical régime is a reduction not only of heat but also of nervous energy. By the use of a little prudence and discretion the body may be maintained in a state of normal equilibrium, but the loss of energy is chiefly felt by the mental faculties. Thus, the North American or European going to the tropics will generally find it easier to avoid deterioration of body than sluggishness of mind. In this connection it may be mentioned incidentally that the keen desire for meat in warm countries, which is a matter of common observation, may arise from a need in the economy for a food easiest of assimilation and capable of generating energy with the least possible heat, if it so happen that the two processes can be dissociated.

Another important effect of heat and moisture is a great increase and multiplication of bacteria, especially of saprophytes, so that decomposition of all organic matter is more rapid and complete. While the part played by saprophytes in reference to human health is rather ill-defined, it is not unlikely that they are more beneficial than hurtful. They are doubtless responsible for unpleasant odors, but it remains to be shown to what extent, if any, decaying animal or vegetable matter, however, objectionable to our olfactories and our esthetic sense, is a cause of disease. Pathogenic bacteria are abundantly generated in the tropics, but so they are in temperate climates. The cholera spirillum and Bacillus pestis develop as readily on the banks of the Thames and the Seine as those of the Ganges, when given a fair chance. Even leprosy was in past centuries as common in Europe as it now is in Asia. The micro-organisms of typhoid fever and pneumonia are much more at home in temperate or even cold climates than in the tropics. The amoeba of dysentery, however, seems to require a constant high temperature. As to the mosquito, that bloody enemy of the human race, we find it everywhere, increasing in number and bloodthirstiness as we go northward and rendering life unbearable during the short summer in Alaska and within the Arctic circle. There is probably not a single state in the Union where the anopheles cannot be found. Even the mosquito responsible for filariasis is not uncommon in our country. It would seem that the stegomya of yellow fever does not extend very far north, but probably far enough to make possible an epidemic in any of the larger cities of the United States.

Dr. Havard then took up the principal diseases of the tropics, which are responsible for the high mortality, and endeavored to show to what extent they were preventable by the application of the modern laws of hygiene. The report of the Board of Health of Manila for the year ending in April, 1904, he said, would afford a convenient text. In spite of the best efforts of the skilled sanitarians composing the board, the death-rate still remains about 40, and evidently conditions exist there over which the authorities have but little control. There is a very high mortality among infants, the chief cause of death being assigned as "convulsions," and with a view to reduce this the board has prepared a popular circular giving rules for the care of the new-born and the feeding of infants, a copy of which is sent to the parents of every child whose birth is reported, and another copy handed by the priest to every mother who brings her child to be baptized. It is expected that the education of the masses and their relief from utter poverty will, in time, materially diminish this unnecessary sacrifice of infantile life. In Havana, where the great bulk of the population is white and of a higher grade of intelligence than in Manila, the infant mortality is lower than in New York. The disease causing the largest number of deaths both in Manila and Havana is tuberculosis; yet, as indicating that the climate is less at fault than sanitary conditions, we find among the Americans and Europeans living in Manila, about 9,000 in number, only 9 cases during the year, or just 1 per 1,000. Among the troops in the Philippines in 1902 the rate was 1.27, while it was only 0.50 among soldiers at home; but in 1903, the figures were reversed, 0.26 in the Philippines and 0.86 in the

United States, the greater ratio at home being partly accounted for by the repatriation of invalided tuberculous patients. The air cure for tuberculosis is easiest, most practicable, and should be most successful in the tropics, but unfortunately there exists in Cuba and all other old Spanish colonies a deeply-rooted prejudice against night air, which is believed to be deadly. With the dissemination of proper knowledge among the people, there should be a better chance of reducing the death-rate from this disease to the minimum in Havana than in New York. One would naturally suppose that where phthisis is so abundant, other lung diseases would be common, but such is not the case; showing once more, the specific distinctions of pulmonary tuberculosis. Next to tuberculosis, cholera was until recently responsible for the greatest number of deaths in Manila, but this like other water-borne diseases, is easily preventable, and the board of health has succeeded in extirpating it, so that the reports for March and April of this year do not show a single case.

Dysentery is one of the most dreaded of the endemic diseases of the Philippines, not only because of its mortality of 1.18, but also on account of its tendency to become chronic and inveterate. This disease cannot be so easily checked as cholera, but an uncontaminated water supply would undoubtedly soon put an end to it. In Cuba dysentery is hardly known, only three or four deaths from it occurring during the year in Havana. Beri-beri is a common disease in certain parts of the tropics, causing almost as many deaths in Manila as dysentery. For the most part it attacks natives of poor constitution and undermined vitality. It is unquestionably preventable, but until its mode of production and propagation is better known, no entirely successful result can be expected. Yellow fever was once the scourge of the West Indies and South America. American intelligence and energy, during our occupation of Cuba, showed how easily that dreaded infection can be checked, controlled and then completely extirpated. Malarial fever, in all its protean forms, is common in all warm countries, producing a mortality of 0.93 per 1,000 in Manila, although not a single death among Americans and Europeans. Considering the great mortality of malarial fever in the tropics, especially as seen in various military expeditions, it would seem that the plasmodium parasite possesses there a degree of virulence unusual in northern countries. The positive results obtained by the use of mosquito bars, as well as door and window screens, in this country, Cuba, Italy, the Philippines and other places, demonstrate that the prevention of malarial fever, whether mild or pernicious, is a comparatively simple problem. Certain facts appear to indicate that we have in the tropics one or more non-malarial and still unrecognized types of fever. Bubonic plague produced a mortality of 0.49 in Manila, but only one death from it occurred among Europeans and Americans. Typhoid fever was formerly considered a disease of white races and of temperate or cold climates, but later experience has shown that tropical and semi-tropical countries are also liable to become infected. Its victims, however, are mostly foreigners, natives enjoying a large amount of immunity from it. The prevention of smallpox is simply a matter of vaccination in the tropics as elsewhere.

Both in the Philippines and Cuba diseases of the nervous and circulatory systems are a considerable cause of mortality. While in Cuba Dr. Havard was struck with the number of people suffering from arteriosclerosis, a fact for which he was unable to offer any explanation, but as there were only 18 admissions for diseases of the heart and blood vessels, and not a single death among our 3,274 soldiers in Cuba and Porto Rico during the year 1902, the climate could hardly be considered an important factor. Hepatitis and hepatic abscess are generally the result of dysentery, and will disappear with it. Leprosy is still too common among the natives of tropical and semi-tropical countries. That it could readily be reduced by strict isolation, and in time completely eliminated, there can be no doubt. As its parasite is also common in Europe and in our southern states, ankylostomiasis, or bookworm disease, can scarcely be considered a tropical affection. The "sleeping sickness" of Africa is produced by inoculation with its parasite through the bite of a fly, and is, therefore, amenable to the same means of prevention as malarial fever. Bright's disease and acute nephritis, as well as cancer, are more prevalent in New York than in warm countries, and of diphtheria, scarlet fever and measles it may be said that they are a negligible quantity in the tropics.

From what has been said it would appear that the high death-rate of the tropics (aside from the great infant mortality characteristic of all semi-civilized populous countries) is due to endemo-epidemic diseases whose cause and mode of propagation are now pretty well understood and which, therefore, are to a large extent preventable. As a final conclusion, is it not warrantable to say that the climate plays but a secondary rôle in the health of any country; that mortality is chiefly dependent upon the character, intelligence and knowledge of its inhabitants, of their understanding of the laws of hygiene and the extent to which they apply to their own special conditions? In other words, human health in any country is not according to its climate but according to its degree of civilization and the quality of its government. For the ten years previous to 1898 the death-rate in Havana, as has been stated, was 36 per 1,000. When the Americans occupied it ordinary hygienic measures were at once applied and enforced, and means devised to provide work and food for the poorer classes with the result that, notwithstanding the absence of any sewerage system, the mortality fell to 24 in 1900 and to 21.20 in 1902, remaining about the same in 1903 under the Cuban Republic. The writer was inclined to believe that when Havana has carried out its intention of constructing a complete modern sewerage system, its rate of mortality will speedily fall below that of New York, and that if the Cuban Republic continues to govern itself with prudence and justice Havana will become the favorite winter resort of North Americans. The fact that during the year 1902 the death-rate among the United States troops in Cuba and Porto Rico was only 3. 36, while among those in the States it was 5.66, shows that in these tropical islands as soon as American sanitarians had had time to get the prevalent diseases under control and guard the men from unsanitary influences, the ratio of mortality fell below that of the United States. While the death-rate of Manila is still very high (about 40), during the past year the rate among the American element of the population, which is principally composed of adult males, was only 9.05, and among the Spanish, consisting of the usual admixture of men, women and children, 15.45.

Dr. H. W. Wiley, Chief of the Bureau of Chemistry, U. S. Department of Agriculture, contributed a paper on

PROPER DIET FOR THE TROPICS.

Experience has shown, he said, that with a change of environment the character of the food must also be changed. If it were true that the activities of the human family were the same in all climates, then the quantity of food necessary to furnish energy would be practically the same from the equator to the poles.

In point of fact, human activity is greater in the temperate zones than it is at either the tropics or the poles, and hence the amount of food used up as energy is greatest in the temperate zones. The great variant in food is that part of it which is necessary to furnish heat. As the quantity of food for furnishing heat is largest at the polar region and smallest at the equator, tropical foods should be less of a heat-forming character than those used in the temperate zones, and, especially, those used in the polar regions. The kind of food, *par excellence*, which furnishes heat is represented by the fats and oils, which differ somewhat from the carbohydrates in that the latter are active both in building tissue and in furnishing heat and energy. As the amount of radiation or loss of heat by radiation is less in the tropics than in either of the other zones, the oils and fats should form only a moderate portion of the diet in the tropics. Furthermore, as the degree of activity is usually less by reason of the character of the climate there, the quantity of matter necessary to repair waste tissue is evidently less in the tropics, and hence the quantity of nitrogenous food should be less in tropical than in temperate climates.

It so happens that nature provides very abundantly in each zone the character of food which is best suited for that region. Thus, in the tropics the indigenous fruits supply most freely the character of food which seems best suited to the nourishment of the people. A fruit diet, as is well known, is one in which nitrogenous and fat elements are reduced practically to a minimum, while sugar and starch are far more abundant. The Bureau of Chemistry has lately taken up a study of many of the tropical fruits, and a table showing the analysis of a number of the most common of these was presented. The principal oil food of the tropics is found in the cocoanut, and their chief starchy food is derived from the cassava in some of its numerous varieties. The prevailing characteristic of the natural food of the tropics is found in the excessive quantity of sugar which they contain, or, as in the case of cassava, of starch. The amount of protein is very small, and the amount of oil is, with the exception of the cocoanut, not marked. On the whole, it appears that the natural tropical food is one composed of a large excess of carbohydrates, in which sugar predominates. The using of food suitable to the environment is one of the conditions necessary to the preservation of health, and those who go from temperate to tropical climate should be impressed with the desirability of gradually changing the character of diet from the highly nitrogenous one which is characteristic of the temperate zones to the highly carbohydrate diet which is characteristic of the tropics.

Recent Literature.

Textbook of Human Physiology. By L. Landois. Tenth revised and enlarged edition. Edited by A. P. Brubaker, A.M., M.D. Translated by August A. Eschner, M.D. Philadelphia: P. Blakiston's Son & Co. 1904.

The editor and the translator have performed important services in bringing to English readers a new edition of Landois' admirable textbook, as previous editions have been for several years out of print. Although some of the newest work in physiology is not to be found in this volume, its characteristic features are so desirable as to commend the book highly. These features are, the statement of pathological variations appended in every section to the description of the normal physiological processes; the description of the methods of clinical investigations; a brief outline of the development of the knowledge expounded in each section, and a summary of the comparative physiology. The reader thus has the subject in its historical and biological setting, with references to pathological and clinical bearings. To one acquainted with the earlier editions of Landois the omission of the references to original investigations on which statements are based seems a mistake, but this defect must be regarded in the presence of other excellencies as slight.

A Textbook of Operative Surgery, covering the Surgical Anatomy and Operative Technique involved in the Operations of General Surgery. Written for students and practitioners. By Warren Stone Bickham, Phar.M., M.D., Assistant Instructor in Operative Surgery, College of Physicians and Surgeons, New York; Late Visiting Surgeon to Charity Hospital, New Orleans, etc. Second revised edition. Octavo of 984 pages, with 559 illustrations, entirely original. Philadelphia, New York and London: W. B. Saunders & Co. 1904.

The first edition of this excellent book, a review of which was published in the Boston Medical and Surgical Journal (vol. cl, p. 21), has been exhausted in six months. This fact speaks emphatically for the manner in which it has been received. In the present edition the character of the work has been little changed except to correct certain typographical errors and to introduce a few minor changes in the text. The book is intended to present surgical anatomy and operative technic. Both the operations of general and special surgery are considered. The details are very fully given. The subject matter has been systematically presented while its arrangement and plan of classification makes it very convenient for reference. The character of the illustrations is excellent and one is frequently impressed by the efficient manner in which they supplement the text.

The book is a valuable contribution to the literature of operative surgery. It represents a vast amount of careful work and technical knowledge on the part of the author. This edition impresses one with this fact fully as much as its predecessor did. As a student's book it is thorough, interesting and unusually complete. For the surgeon in active practice or the instructor of surgery it is an unusually good review of the subject.

News from London says: The official return shows that fewer lives were lost at sea in 1903 than in any year in the last twenty-five. The lives lost in 1903 were 624, of which 599 were sailors and 25 passengers. The annual average for the last twenty-five years is 1,613 lives. — *American Medicine.*

THE BOSTON
Medical and Surgical Journal.

THURSDAY, DECEMBER 22, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal, 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

A PLEA FOR BIOLOGY.

AMONG the many illuminating addresses recently delivered at the Congress of Arts and Sciences in St. Louis, Dr. Jacques Loeb in his remarks on the recent development of biology, published in *Science*, enters a strong plea for the wider recognition of the importance of this subject. However much one may disagree with Dr. Loeb's philosophical and physiological doctrines in detail, it is clear that he represents a strong influence and that his utterances are always worthy of attention. We are inclined to think that, like most men who accomplish definite results, he at times in his enthusiasm for his own chosen field of research does scant justice to other lines of investigation which to the ordinary mind are equally significant. Speaking, for example, of the fact that representatives of the mental sciences often reproach adherents of the natural sciences because of their materialistic tendencies, he writes:

> The struggle against superstition is entirely carried on by the natural sciences, and especially by the applied sciences. The nature of superstition consists in a gross misunderstanding of the causes of natural phenomena. I have not gained the impression that the mental sciences have been able to reduce the amount of superstition. Lourdes and Mecca are in no danger from the side of the representatives of the mental sciences, but only from the side of scientific medicine. Superstition disappears so slowly for the reason that the masses as a rule are not taught any sciences. If the day comes when the chief laws of physics, chemistry and experimental biology are generally and adequately taught we may hope to see superstition and all its consequences disappear, but not before this.

This is a radical statement which is unlikely to gain universal assent. It does injustice to the great class of painstaking workers who are attempting, and we believe with success, to analyze the laws of mind with the same conscientiousness that Dr. Loeb and his colleagues are studying what he is pleased to call the natural sciences as distinguished from the mental sciences. We have no desire to question the wide influence which biological methods, broadly applied, have accomplished in reducing the world to rationality, but the fact should not be lost sight of that this same rationalizing tendency appears among the students of the purely mental sciences as well.

What Dr. Loeb goes on to say in a subsequent portion of his address is worthy of close consideration. He recognizes the fact that physics and chemistry have developed with surprising rapidity during the past few years, whereas biology, as ordinarily interpreted, has had no such phenomenal development. He believes, however, that this difference in fertility of discovery arises, in part at least, from the present organization of the biological sciences. He thinks, therefore, that biology should be more generally recognized through special provision in our universities. His remarks on this subject are as follows:

> General or experimental biology should be represented in our universities by special chairs and laboratories. It should be the task of this science to analyze and control those phenomena which are specifically characteristic of living organisms, namely, development, self preservation, and reproduction. The methods of general biology must be those of chemistry, and especially those of physical chemistry. To-day general or experimental biology is represented in our universities neither by chairs nor by laboratories. We have laboratories for physiology, but to show how little interest physiologists take in general biology I may mention the fact that the editor of a physiological annual review excludes papers on the development and fertilization from his report, as, in his opinion, this belongs to anatomy. On the other hand, anatomists and zoologists must give their full energy to their morphological investigations and have, as a rule, neither the time for experimental work nor very often the training necessary for that kind of work. Only the botanists have kept up their interest in general biology, but they of course pay no attention to animal biology. In working out this short review of the development of biology during the last century I have been impressed with the necessity of our making better provisions for that side of biology where, in my opinon, the chances for the great discoveries seem to lie, namely, *general* or *experimental* biology.

This statement of the case no doubt corresponds entirely with the facts. The situation is but one of many presenting itself for solution in the immediate future. The amplification of

the sciences, the specialization which many have already attained, and the importance of covering the field completely, must from time to time necessitate readjustments of curricula which on the whole will represent the existing state of knowledge. That biology, as broadly understood both in its theoretical and applied aspects in connection with medicine, will come to have a wider recognition as time goes on is unquestioned. Vigorous addresses such as this of Dr. Loeb will do something toward hastening the day.

POISONING BY WOOD ALCOHOL.

Requests have been received lately from several sources for a brief and clear statement in regard to poisoning by wood alcohol and its treatment. The fact that a number of deaths have resulted recently from drinking cheap and factitious whiskey serves to emphasize the importance and great danger of using methyl (wood) alcohol as an adulterant.

Wood alcohol is used primarily as a solvent, but it can be employed in place of ethyl (grain) alcohol wherever the latter is called for or specified. Within recent years advantage has been taken of its solvent properties, and it has been substituted for grain alcohol in the preparation of flavoring extracts, tinctures, Jamaica ginger, bay rum, cologne water, witch hazel, as well as for all kinds of official, domestic and proprietary remedies until now its use has grown to alarming proportions. The chief reason for this seems to be the expense. Wood alcohol is free from tax and sells for about fifty cents per gallon, while grain alcohol is taxed and sells for about $2.60 per gallon. Furthermore, because of the inexpensiveness of wood alcohol it is sought by those who desire a cheap debauch and its results are frequently disastrous. It is also in demand for drinking purposes where ethyl alcohol cannot be obtained. For example, in Indian Territory where the sale of grain alcohol is prohibited by the government the yearly number of deaths from drinking wood alcohol is comparatively large. In the purified or deodorized form, and sold under the names "Columbian spirits," " colonial spirits " and " eagle spirits," its taste and odor are not as disgusting as in the unpurified article. It can, therefore, be added to a preparation containing a small amount of grain alcohol without ready detection. Upon this basis it is used to adulterate whiskey, and the results we know. Poisoning may occur as the result of inhalation of the vapor of wood alcohol. This occasionally occurs in manufactories where this form of alcohol is used very extensively as a solvent; it is, therefore, the custom in such factories to admit a great deal of fresh air to the work rooms in order to prevent accidents. Symptoms of poisoning have been known to follow the absorption of methyl alcohol through the skin; for example, after bathing, sponging, or rubbing with it, and after the applications of methylated liniments.

Methyl alcohol is distinctly a poison. The symptoms are, first, mild intoxication, later, followed by severe headache, marked pallor, gastric pain, gastro-intestinal irritation, retching, dilated pupils, partial or complete blindness, paralysis of the legs, dyspnea, delirium, unconsciousness, stertorous breathing, collapse and death. But recovery may follow, particularly if the dose has been small and the individual is capable of resisting the action of the poison for a number of days. An almost constant feature of this form of poisoning is the toxic amblyopia — retro-bulbar neuritis — which, if the patient survives, usually results in partial or total blindness. A cystitis is very apt to follow this form of poisoning. It is not uncommon to find this affection among those who work day after day in the vapor of methyl alcohol. The fatal dose is probably between four and eight ounces. Complete nerve atrophy (optic nerve) has been known to follow the ingestion of from two to five drams. But wood alcohol or preparations containing it are generally taken in much the same way as preparations of grain alcohol, *i.e.*, in small amounts and at frequent intervals, so that it usually happens that a pint or even a quart of the fluid has been taken and with a fatal result. The fatal period is from a few hours to three days, depending on the quantity taken. If recovery ensues, it is generally not complete for several weeks or months.

The post-mortem appearances are as follows: Rigor mortis is usually present; skin very pale but sometimes livid; marked congestion of the mucous membrane of the stomach and duodenum; ecchymoses may also be found dotting the mucous surfaces of these organs. The vapor of wood alcohol is often perceptible in the stomach contents. The liver and spleen congested and very friable. The kidneys are congested, showing pin-point hemorrhages. The bladder is congested and an odor of wood alcohol is in the urine as in the bladder. The brain is edematous; the blood dark and very fluid. The pathological changes which result in death in these cases are not known, although rapid nerve degeneration is probably

a potent factor. In some instances there is paralysis of respiration long before the heart ceases to beat, but this is not the invariable rule. It is, therefore, obvious that we must look to the pathologist for more reliable data as to the immediate cause of death. In some cases of poisoning by methyl alcohol it has been found that formates appear in the urine as a result of the decomposition of methyl alcohol in the body, and that they are excreted very slowly. Since sodium formate has been found to be eight times more toxic than methyl alcohol, and that formates are slowly eliminated, we have a probable explanation of the prolonged action of a single dose and the fatal action of large doses of wood alcohol.

The treatment should consist in washing out the stomach, if possible, in order to remove any unabsorbed alcohol. Strychnine should be given subcutaneously in order to counteract as far as possible the depressing effect of the alcohol. The surface temperature must be maintained by the use of heaters or hot packs and by rubbing. Cold applications to the head, and rectal injections of hot coffee are useful. In the mild cases catharties and enemata may be given; also potassium iodide in increasing doses. The latter acts favorably in cases of partial blindness. There is no known antidote for methyl alcohol.

We have pointed out some of the dangers of the use of wood alcohol, and we take this opportunity of encouraging more vigorous action by boards of health in regard to the sale of methyl alcohol and its use in pharmaceutical preparations, whiskey, flavoring extracts, etc., which, on account of this form of adulteration, place the lives of individuals in jeopardy.

THE NOBEL PRIZE IN MEDICINE.

THE annual award of the Nobel prizes to "men who work for the interests of humanity" is an international recognition of distinguished service. This year the prize in medicine has been bestowed on Prof. J. P. Pawlow, the St. Petersburg physiologist. The brilliant discoveries of Professor Pawlow and his students, like the discoveries of the other recipients of the prizes in science this year, Lord Rayleigh in physics and Sir William Ramsay in chemistry, have been the rewards of extreme exactness and carefulness of method. It has been the contention of Professor Pawlow that although the ordinary "acute" experiment in physiology, carried out at one sitting, may be useful in studying some of the functions of individual organs, it is not likely to give insight into the complicated interrelations of the parts which make up the total organism. He has obtained his remarkable results in the study of the digestive glands by applying to physiology the methods of the surgeon. Operations destroying existing relationships between organs or establishing new relationships have been performed on animals, and the animals then restored so far as possible to their normal condition and carefully observed. It was by the use of the surgical method that Minkowski discovered the internal secretion of the pancreas. And in the Physiological Institute in St. Petersburg are all the modern arrangements for aseptic surgical operations, preparation rooms for animals and for operators, a separate operating room, a bandaging room, and recovery cabins for after treatment. With surgery as his aid in the study of function Professor Pawlow entered a realm already traversed by such distinguished physiologists as Claude Bernard and Heidenhain, and proved that many of its marvels had hardly been noticed.

The lectures on "The Work of the Digestive Glands," delivered to medical men in 1897 and in 1902, summarize the results obtained by the Pawlow school. These lectures have been translated from Russian into French, German, and recently into English, and they form as suggestive and illuminating a body of scientific research as a man interested in the advance of medicine can find to read.

It is impossible in a short space to do more than to hint at the remarkable interrelations found to exist between different parts of the alimentary canal. The importance of appetite and other psychic factors in preparing the digestive secretions, not only of the mouth but of the stomach, for the work before them; the effect of the acid chyme in causing the flow of pancreatic juice; the peculiar excitants, such as fat, which start the flow of the bile; the action of the bile in tripling the energy of the fat-splitting ferment of the pancreatic juice, and the action of the succus entericus in activating the proteid-splitting ferment, trypsin, — these are a few of the conspicuous interacting mechanisms, demonstrated by Professor Pawlow and his students, which make the course of digestion an orderly process. Quite as remarkable as these interrelationships are the extraordinary adaptations of the digestive secretions to the nature of the food ingested. That an intelligent and economical manager would make the secretion suitable to the food might be expected, but that the digestive glands possess

this power is a marvellous feature of the bodily economy left for Pawlow and his school to prove definitely for the first time. All who know the work of the Russian physiologist will commend highly the award of the Nobel prize this year in medicine.

METHYLENE BLUE IN MALARIAL FEVERS.

The use of methylene blue in malarial fevers was first suggested by Guttmann and Ehrlich in 1891 who were led thereto by the observations of Celli and Guarnieri who were struck by its staining properties in connection with the living malarial parasites. Since then other clinical investigators have tested its effects, especially abroad, with somewhat variable results. Some cases thus treated at the Johns Hopkins Hospital in 1892 seemed to indicate that the parasite might acquire a tolerance of this drug.

Dr. Horatio C. Wood, Jr., reports [1] a number (six) of cases of malaria at the Philadelphia Hospital last summer treated with methylene blue, and also sums up from the literature 425 cases reported in sufficient detail, and reaches the conclusion that in the medicinal methylene blue, as distinguished from the dye, we have an antiperiodic which rivals quinine in power, and which is, in many cases, to be preferred to that alkaloid on account of its freedom from unpleasant by-symptoms; that if not equal to quinine in power it is, at least, far superior to any other drug at present known. The impression seems to be that in cases where quinine precipitates hemoglobinuria methylene blue may be used to advantage. It does not produce the dramatic immediate cessation of the malarial paroxysm which often follows the exhibition of quinine, but this is thought to be explicable by the observations of Iwanoff (1901) that, whereas the younger forms of the plasmodium are especially susceptible to the action of quinine, it is the older forms which are prone to succumb to methylene blue. A combination of the two drugs is therefore suggested.

In his cases Dr. Wood gave methylene blue in doses of 2 or 3 gr. every three hours for a week or ten days and then gradually stopped it. He emphasizes the importance of a continuance of the treatment over a period of several weeks, and suggests that the failure to regard this precaution has been the cause of many of the relapses recorded.

[1] Therapeutic Review, November, 1904.

SECRETARY OF THE STATE BOARD OF HEALTH.

We announced last week the appointment of Dr. Charles Harrington to succeed the late S. W. Abbott as secretary of the State Board of Health. For many years Dr. Abbott had filled this responsible position in a most satisfactory manner, adding much to the high reputation which this board of health has always maintained. It will be many years before the statistical studies and painstaking investigations on matters of health which came from Dr. Abbott's pen will be forgotten. Naturally, it is a somewhat difficult matter to fill the position of so experienced a public official. That this, however, has been satisfactorily accomplished in the appointment of Dr. Harrington cannot be doubted by any who know his work. Dr. Harrington's previous training, his knowledge of hygiene, embodied in a textbook on the subject, and his wide practical experience with matters of health, together with his fearless denunciation of fraud and deceit in matters relating to the welfare of the community, admirably fit him for his new duties as secretary of the board. Dr. Harrington was formerly chemist to this board, and for fifteen years has done excellent work in connection with the Boston bureau of inspection of milk. For many years he has been connected with the Harvard Medical School, first as instructor, and for several years past as assistant professor of hygiene. He will continue to discharge his duties in connection with the medical school, but will unite his teaching and research with the further work of the board of health. The state is to be congratulated upon this choice, and we have no doubt the reputation of the board of health will be amply maintained through his appointment.

MEDICAL NOTES.

National Mosquito Extermination Society. — The progress of medicine is illustrated by the fact that the second annual meeting of a society bearing the above name was held last week in New York. The program was of much interest, contributed to by men of prominence both here and abroad.

Deaths at Advanced Ages. — The Board of Health for the Philippines states that the century mark had been passed by two persons who died during the month of August, — Mauricia Francisco and Juan de los Santos, whose ages were given as one hundred and twenty, and one hundred and nine years, respectively. No attempt was

made to verify these ages. The report justly adds that any statement with reference to ages of more than one hundred years should be taken with due allowance in the absence of documentary proof.

EXAMINATIONS FOR PANAMA CANAL. — The United States Civil Service Commission announces an examination to be held Jan. 18, 1905, for a surgeon, physician, pharmacist, hospital interne and trained nurse to serve under the Isthmian Canal Commission.

Each applicant for the Isthmian Canal Service will be required to submit to the examiner, on the day he is examined, a recent photograph, not more than three years old, of himself, which will be filed with his examination papers, as a means of identification in case he receives an appointment. An unmounted photograph is preferred. The date, place, and kind of examination, the examination number, the competitor's name, and the year in which the photograph was taken should be indicated on the photograph.

The age limit for both surgeon and physician is from twenty-five to fifty years, with salary ranging from $150 to $250 a month. The examinations cover fundamental branches of medicine, including tropical diseases. It is desired that only surgeons of wide experience and good training be appointed, hence stress is laid upon practical experience. The highest salaried positions will be given only to those who have had extensive hospital experience and are familiar with tropical diseases. A somewhat rigid examination is also required for those applying for the position of hospital interne and trained nurse, whether male or female. The examinations are open to all citizens of the United States complying with the requirements.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Dec. 21, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 28, scarlatina 25, typhoid fever 15, measles 9, smallpox 0.

TRUSTEES FOR THE LONG ISLAND ALMSHOUSE AND HOSPITAL. — The following trustees for the pauper institutions department have been appointed by Mayor Collins to take the place of the former board which resigned last March: Miss Frances R. Morse, Mr. Bernard J. Rothwell, Mr. William J. Sullivan, Miss Maud E. Rockwell, Mr. William Prentiss Parker, Dr. James B. Cherry, and Mr. Walter Hunnewell. During the interim the institution has been under the charge of Hon. John B. Martin of the penal institutions department.

NEW YORK.

GRADUATION OF NURSES. — At the second annual graduating exercises of the training school for nurses of the Lincoln Hospital and Home, situated in the Borough of the Bronx, held on December 15, nine young colored women were graduated. The principal address was made by Professor Ware of Atlanta University.

SOCIETY OF MEDICAL JURISPRUDENCE. — At the annual meeting of the Society of Medical Jurisprudence, held December 12, Dr. Carl Beck was elected President. The following physicians were elected members of the board of trustees: Drs. E. F. Brush, C. A. Van Ramdohr, E. J. Palmer and W. N. J. Steberg. The paper of the evening was by Wm. B. Hornblower, Esq., on "Insanity as Affecting the Law of Torts."

FUNDS FOR THE METHODIST EPISCOPAL HOSPITAL. — At a meeting of the board of managers of the Methodist Episcopal Hospital, Brooklyn, held Dec. 16, it was announced that the managers had succeeded in raising the fund of $300,000 necessary to secure to the hospital the gift of $125,000 from Mr. and Mrs. William Halls, Jr., and that a further effort would be made to raise an additional $200,000. The institution is better known as the Seney Hospital, having been founded by George I. Seney in 1881.

PREVENTION OF TUBERCULOSIS. — The committee on the prevention of tuberculosis of the New York Charity Organization Society and the National Association for the Study and Prevention of Tuberculosis are about to publish jointly a Directory of Institutions and Societies dealing with tuberculosis, an illustrated volume of 270 pages. In it the attempt is made for the first time to present definite information of all the organized work on this subject which is being done in the United States and Canada. The book is divided into the following six sections: (1) Sanatoriums, hospitals and camps; (2) Special Dispensaries; (3) The Tuberculous Insane; (4) Tuberculous Prisoners; (5) Municipal Control of Tuberculosis; (6) Association for the Prevention of Tuberculosis (including societies, committees and state commissions). In the section on sanatoriums are introductory articles by Drs. Edward L. Trudeau of Saranac Lake and Lawrence F. Flick of the Henry Phipps Institute in Philadelphia; and in that on Dispensaries, one by

Dr. Edward O. Otis, Superintendent of the Boston Dispensary. Dr. J. B. Ransom of Clinton Prison, N. Y., writes of the care of tuberculous patients in penal institutions, and Dr. H. A. Macdonald, lately Superintendent of the Manhattan State Hospital, Ward's Island, N. Y., of the tuberculous insane; while Dr. H. M. Biggs of the New York Health Department gives a description of a municipal system for the control of tuberculosis.

Revocation of Milk Permit. — On account of the general unsanitary conditions in an Orange county dairy, and because of the illegal use of formaldehyde as a preservative, the Health Department has revoked the permits of the Metropolitan Milk and Cream Company, which for the last twenty years has been doing business at Jefferson Market. Evidence was obtained by special inspectors of the department who are now visiting the country districts from which New York receives its principal milk supply.

Heretofore the procedure has been to destroy impure milk and fine the dealer. The Metropolitan Company, however, was not taken into court. The revocation of its permits absolutely and at once puts a stop to all its operations, and these cannot be resumed unless it shall be able to secure a new license.

City held Liable for Explosion. — By a decision of the Court of Appeals on December 13, reversing the dismissal of the complaint and granting a new trial in the case of Solomon Landau against the City of New York, the city is held liable for an explosion of fireworks at a political demonstration in Madison Square in 1902, when eighteen persons were killed and nearly two hundred injured. It is stated that the claims which have been filed with the comptroller by persons injured and the relatives of those killed by the explosion amount to $1,719,290.

American Extermination Society. — The National Mosquito Extermination Society, which has decided to change its name to the American Extermination Society, held its second annual meeting at the New York Aquarium and the Brooklyn Institute of Arts and Sciences on December 14 and 15. Among the papers read were the following: "Diversities among New York Mosquitoes," by Dr. E. Porter Felt, New York State Entomologist; "Public Health and Marine Hospital Service," by Dr. Walter Wyman, Surgeon General; "Methods of Examination and Dissection of Mosquitoes for Parasites," by Dr. M. J. Rosenau, director of the hygienic laboratory at Washington; and "What New York City is Doing and Might Do towards Mosquito Extermination," by Dr. Bramley, for Health Commissioner Darlington.

Conference of State Sanitary Officers. — The fourth annual conference of State Sanitary officers was held in Albany on December 15 and 16. Dr. Daniel Lewis, State Commissioner of Health, presided and over four hundred officers were in attendance. Among the papers read were one on food adulteration by Dr. H. W. Wiley, chief of the Bureau of Chemistry, U. S. Department of Agriculture, and one on the present status of the law relating to compulsory vaccination of school children by deputy attorney-general Church. Having referred to the recent decision of the Court of Appeals in the Viermeister case and other decisions, Mr. Church remarked: "It will be seen from the above that compulsory vaccination for school children has become an established fact in this state and has the sanction of our highest court." It was necessary, however, he said, to distinguish between public schools and schools not of that character, as the only authority which the local boards of health had to exclude pupils from private schools was in case of epidemics.

Miscellany.

CONDITIONS OF NEW YORK SUBWAY.

A meeting of the Advisory Board of Health was held on December 12, to discuss conditions in the new subway, at which Drs. Janeway, Kinnicutt, Jacobi, Loomis and other prominent physicians were present. No fault was found with the air of the subway, but it was the consensus of opinion that a different flooring (of cement or asphalt) must be provided in place of the present roadbed composed of broken stone. This is regarded as likely to prove a source of infection from germs, as it is practically impossible to prevent spitting and the throwing of cigarettes and cigar stumps into it. A smooth, hard roadbed could be readily kept clean. Professor Chandler has now published a supplementary report to the Board of Health, in regard to carbon dioxide in subway air. The conclusion she arrives at are as follows: "These results fully confirm my previous analyses, and it thus appears: First, that the air of the subway is not deficient in oxygen, and, second, that the air is not contaminated with carbon dioxide. The analyses show that the average increase in the carbon dioxide in the air of the subway is 1.37 parts in 10,000, which we may assume to be due to respiration and combustion, there being a little of the latter in the subway. This increase is of absolutely no consequence, and does not in any way render the air less healthful or suitable for respiration."

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 10, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Meningitis.
New York . .	3,908,644	1,357	369	21.59	21.29	2.28	1.40	96
Chicago . . .	2,021,086	512	121	23.04	16.60	2.93	1.36	—
Philadelphia	1,407,968	453	114	20.30	19.86	3.75	1.54	—
St. Louis . .	633,606	—	—	—	—	—	—	—
Baltimore . .	542,229	198	50	16.67	16.67	—	3.53	—
Cleveland . .	444,251	—	—	—	—	—	—	—
Buffalo . . .	400,645	—	—	—	—	—	—	—
Pittsburg . .	362,403	—	—	—	—	—	—	—
Cincinnati . .	338,277	—	—	—	—	—	—	—
Milwaukee .	325,990	—	—	—	—	—	—	—
Washington .	300,776	—	—	—	—	—	—	—
Providence .	196,744‡	55	14	21.81	5.45	3.63	—	—
Boston . . .	617,950	197	42	15.23	20.30	1.01	3.55	—
Worcester . .	136,925	33	7	12.12	6.06	—	—	6.06
Fall River . .	119,349	26	11	26.92	19.23	15.38	3.85	—
Lowell . . .	104,402	25	8	24.00	4.00	—	—	—
Cambridge .	100,998	31	4	19.35	19.35	3.22	3.22	—
Lynn	73,875	14	3	7.14	28.57	—	—	—
Lawrence . .	72,348	15	5	20.00	33.33	—	—	6 67
Springfield .	72,020	16	2	12.50	6.25	—	—	—
Somerville .	70,413	24	4	29.16	8.33	—	—	8 33
New Bedford	68,863	28	11	14.28	21.42	—	—	—
Holyoke . . .	50,538	10	4	10.00	20.00	—	—	—
Brockton . .	46,601	11	3	27.27	18.18	—	—	—
Newton . . .	39,310	4	1	50.00	—	50.00	—	—
Haverhill . .	39,061	11	5	36.36	9.09	9.09	9.09	—
Malden . . .	37,205	6	—	16.67	—	—	16.67	—
Salem	37,188	18	1	—	16.67	—	—	—
Chelsea . . .	36,499	14	0	14.28	—	—	—	—
Fitchburg . .	36,335	—	—	—	—	—	—	—
Taunton . . .	34,577	14	3	14.28	14.28	—	—	—
Everett . . .	30,309	5	1	—	—	—	—	—
North Adams	29,201	8	1	12.50	—	—	—	—
Quincy . . .	26,798	—	—	—	—	—	—	—
Gloucester .	26,127	—	—	—	—	—	—	—
Waltham . .	25,797	10	1	10.00	—	—	—	—
Brookline . .	25,576	6	—	—	—	—	—	—
Pittsfield . .	22,870	8	—	12.50	—	—	—	—
Medford . .	21,956	5	—	—	20.00	—	—	—
Chicopee . .	21,692	6	3	—	16.67	—	—	—
Northampton	20,314	4	2	—	—	—	—	—
Beverly . . .	15,807	3	—	33.33	—	—	—	—
Leominster . .	15,711	—	—	—	—	—	—	—
Clinton . . .	15,694	4	1	—	—	—	—	—
Adams . . .	14,745	—	—	—	—	—	—	—
Attleboro . .	14,561	—	—	—	—	—	—	—
Hyde Park .	14,509	5	1	—	20.00	—	—	—
Newburyport	14,478	6	1	16 67	16.67	—	—	16.67
Woburn . . .	14,315	7	3	—	14.30	—	—	—
Melrose . . .	13,819	1	0	—	—	—	—	—
Westfield . .	13,809	8	2	—	—	—	—	—
Milford . . .	13,771	—	—	—	—	—	—	—
Marlboro . .	13,609	3	0	—	—	—	—	—
Revere . . .	13,609	4	2	—	—	—	—	—
Framingham	12,974	6	2	—	16.67	—	—	—
Peabody . . .	12,406	—	—	—	—	—	—	—
Gardner . . .	12,324	2	—	50.00	—	—	—	—
Southbridge	11,716	3	3	100.00	—	33.33	—	—
Watertown .	11,575	0	—	—	—	—	—	—
Weymouth .	11,350	4	0	—	25.00	—	—	—
Plymouth . .	11,139	—	—	—	—	—	—	—

Deaths reported, 3,180; under five years of age, 805; principal infectious diseases (small pox, measles, scarlet fever, cerebro-spinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 642; acute lung diseases 589, consumption 355, scarlet fever 23, whooping cough 8, cerebrospinal meningitis 19, small pox 2, erysipelas 13, puerperal fever 8, measles 13, typhoid fever 51, diarrheal diseases 73, diphtheria and croup 76.

From whooping cough, New York 4, Chicago 3, Philadelphia 1. From scarlet fever, New York 14, Chicago 2, Philadelphia 3, Baltimore 1, Boston 2, Somerville 1. From cerebrospinal meningitis, New York 13, Worcester 2, Lawrence 1, Somerville 2, Newburyport 1. From erysipelas, New York 9, Boston 2, New Bedford 1, Haverhill 1. From small pox, Chicago 1, Philadelphia 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Nov. 26, the death-rate was 17.3. Deaths reported 5,075; acute diseases of the respiratory organs (London) 228, whooping cough 53, diphtheria 73, measles 120, small pox 2, scarlet fever 48.

The death-rate ranged from 9.3 in West Bromwich, to 24.8 in South Shields; London 16.8, West Ham 19.9, Brighton 18.6, Southampton 16.7, Plymouth 17.8, Bristol 18.2, Birmingham 22.8, Leicester 20.2, Nottingham 17.0, Birkenhead 17.7, Liverpool 21.6, Wigan 22.4, Bolton 13.9, Manchester 20.6, Salford 20.7, Halifax 14.5, Bradford 13.9, Leeds 15.1, Hull 16.2, Sheffield 17.9, Newcastle-on-Tyne 19.9, Cardiff 14.8, Rhondda 18.3, Hornsey 12.8, Coventry 14.8.

METEOROLOGICAL RECORD.

For the week ending December 10, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer. Daily mean.	Thermometer. Daily mean.	Thermometer. Maximum.	Thermometer. Minimum.	Relative humidity. 8.00 A.M.	Relative humidity. 8.00 P.M.	Relative humidity. Daily mean.	Direction of wind. 8.00 A.M.	Direction of wind. 8.00 P.M.	Velocity of wind. 8.00 A.M.	Velocity of wind. 8.00 P.M.	We'th'r * 8.00 A.M.	We'th'r * 8.00 P.M.	Rainfall in inches.
S.. 4	30.24	26	35	16	68	49	58	W	N W	5	15	C.	C.	0
M.. 5	30.16	26	32	19	63	100	82	W	N W	10	6	F.	N.	.12
T.. 6	30.02	28	33	23	75	43	59	N W	W	9	7	C.	C.	.12
W.. 7	29.64	31	38	24	78	71	75	S W	W	12	15	O.	C.	0
T.. 8	29.49	26	29	22	76	87	82	S W	N W	5	9	O.	C.	.03
F.. 9	29.88	25	11	18	77	58	68	N W	W	12	12	O.	C.	T.
S.. 10	29.97	18	8	13	63	56	60	N W	N	10	12	O.	O.	T.
☞	29.91		27	19			69							.27

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

RECENT DEATH.

CHARLES K. LAW, M.D., of Jersey City, N. J., died on Dec. 13, from peritonitis. He was thirty-six years of age, and was graduated from the medical department of the University of New York in 1893.

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheater of the Boston City Hospital on Dec. 23, from 10 A. M. until 12.30 P. M.: Radical Cure of Inguinal Hernia; Appendectomy; Supra-pubic cystotomy — vesical calculus; Wiring of tibia; External urethrotomy; Varicocele; Amputation of fingers; Appendectomy.

BOOKS AND PAMPHLETS RECEIVED.

A Text-Book of Histology. By Frederick R. Bailey, A.M., M.D. Illustrated. New York: William Wood & Co. 1904.

Text-Book of Human Physiology, including Histology and Microscopical Anatomy with Especial Reference to the Practice of Medicine. By Dr. L. Landois. Tenth Revised and Enlarged Edition. Edited by Albert P. Brubaker, M.D. Translated by Augustus A. Eshner, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1904.

Department of Health, City of Chicago. Vital Statistics of the City of Chicago for the years 1899 to 1903 inclusive.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and Other Topics of Interest to Students and Practitioners. By Leading Members of the Medical Profession throughout the World. Edited by A. O. J Kelly, A.M., M.D. Vol. iii. Fourteenth Series. Illustrated. Philadelphia: J. B. Lippincott Company. 1904.

A Text-Book of Quantitative Chemical Analysis by Gravimetric, Electrolytic, Volumetric and Gasometric Methods with Seventy-two Laboratory Exercises, giving the Analysis of Pure Salts, Alloys, Minerals and Technical Products. By J. C. Olsen, A.M., Ph.D. Illustrated. New York: D. Van Nostrand Company. 1904.

Concerning Haemagglutinins of Bacterial Origin and Their Relation to Hyaline Thrombi and Liver Necroses. By Richard M. Pearce, M.D., and Charles K. Winne, Jr., M.D. Reprint.

Saunders' Question-Compends, No. 20. Essentials of Bacteriology, being a Concise and Systematic Introduction to the Study of Micro-organisms. By M. V. Ball, M.D. Fifth Edition, thoroughly Revised by Karl M. Vogel, M.D. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

Saunders' Question-Compends, No. 21. Essentials of Nervous Diseases and Insanity, their Symptoms and Treatment. By John C. Shaw, M.D. Fourth Edition, thoroughly Revised by Smith Ely Jelliffe, M.D., Ph.D. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

A Simple Method of Cultivating Anaërobic Bacteria. By Burt Ransom Rickards, S.B. Reprint.

Original Articles.

THE ULTIMATE RESULTS OF CAUTERIZATION OF THE LOWER TURBINATE, WITH THERAPEUTIC SUGGESTIONS BASED UPON HISTOLOGICAL FINDINGS.

BY J. L. GOODALE, M.D., BOSTON.

THE object of the following paper is to give the results of a histological examination made into a series of cases which had been previously cauterized for swelling or hypertrophy of the lower turbinates, and which had reported later with a recurrence of nasal obstruction. This subject is of importance for us to-day, especially for the reason that it represents a large class of cases which come under the observation of the practitioner. While cauterization of the nasal tissues is now practiced much less frequently than formerly, yet it is still indiscriminately employed by many physicians, and with not always satisfactory results. Although a large percentage of cases showing enlargement of the lower turbinate are relieved by cauterization, yet in certain instances improvement does not follow. In another class of individuals, nasal breathing becomes free, and remains so for a period ranging from several weeks to several months, when aid is again sought for a return of the symptoms. Furthermore, in certain instances evidence shows that after cauterization the nose fails to perform its function properly of moistening the inspired air, and these patients complain subsequently of excessive dryness in the nose and throat. This is particularly the case in persons who have been liberally cauterized during the hay fever season. After the first frost, the excessive secretion ceases, and in the course of the winter, progressively increasing dryness of the nose and throat appears. It has seemed to the writer that the indications for the use of cauterization in the nose, and the limits of its usefulness, were insufficiently understood, inasmuch as the only knowledge at hand was obtained from clinical investigation.

The following series of cases is selected from a large number of hospital and private patients who had in the past been cauterized for congestion or hypertrophy of the lower turbinates, and who had reported later at varying intervals, with a return of the symptoms. It was considered desirable, in order to afford the patient more permanent relief, to remove a portion of the enlarged tissues in the cauterized area, and in its immediate vicinity. This removal was done with nasal scissors, and was confined to the mucous membrane and the soft tissues immediately beneath. The excised tissue was placed immediately in Zenker's fluid, or in a saturated solution of corrosive sublimate. The most satisfactory method for demonstration of the fibrous tissue was found in Mallory's triple stain, which gives exceedingly beautiful pictures. In connection with this, staining by hematoxylin and Congo red was employed for the purpose of demonstrating the nature of the glands, whether mucous or albuminous. Paraffin sections are stained in the customary way in either aqueous alum hematoxylin, or in Delafield's hematoxylin, washed several hours, then stained in $\frac{1}{10}$ to $\frac{1}{4}$% Congo red for one to five minutes, washed in 95% alcohol to remove excess of stain, dehydrated in absolute alcohol, cleared in xylol and mounted.

As I have recently shown,[1] the glands of the nose are of two kinds, the mucous and the serous, the distinguishing feature being the presence of secreting capillaries in the latter, and their absence in the former. Until recently, a confusion of opinion had existed as to the nature of these glands, certain observers, as Koelliker[2] and Stoehr,[10] maintaining that both mucous and serous glands existed in the nose; others, as Schiefferdecker,[3] believing that only mucous glands were found. Those who upheld this latter view assumed that all the glands in the nose were capable of secreting mucus. Glands which presented, on examination, no mucus, were assumed to be in a state of rest. Retzius[4] and E. Müller,[5] followed later by Fuchs-Wolfring,[6] have shown for the larynx and trachea that both serous and mucous glands exist. The mucous gland when in a state of activity is readily recognizable, while the mucous gland at rest is indistinguishable from the serous or albuminous one, except by the presence in the serous gland of secreting capillaries. These secreting capillaries are fine tubules imbedded in the cementing substance, between the cells, which run from the lumen of the gland, to its periphery. The mucous gland does not possess these capillaries, and one is thus able in suitably stained specimens to distinguish between the two types.

In addition to the glands of the mucous membrane, another arrangement contributes to the formation of nasal fluid. This is found in the canals or canaliculi which penetrate the basement membrane. These canals were first seen by Heiberg, who found them also in the larynx and trachea. Later they were found by Chatellier in hypertrophic nasal mucous membrane, but were not seen with certainty in normal tissues. Schiefferdecker has found them also in normal mucous membrane. According to this writer, they are readily recognizable under moderate enlargement, although smaller than the capillaries, and require no especial preparation, although they are naturally more distinct when the basement membrane is completely stained. The basement membrane is found only in the region of the ciliated epithelium.

The canals penetrate the basement membrane, and end free under the epithelium. Usually they run obliquely, and at times present a continuation between the lower epithelial cells to a higher place which narrows above to a point. The epithelial cells pass smoothly over the peripheral opening, and send nowhere a prolongation into it. Where the canaliculi lie close to each other, they are found separated by at least two to four epithelial cells. They are, however, distributed irregularly without especial reference to other

structures. In the canals themselves, and also immediately above and below their openings, one finds frequently leucocytes which have wandered from the adenoid layers below, and have migrated into the epithelium. The prolongations of the connective tissue cells which lie under the basement membrane often penetrate into the canals, at times as far as the epithelium, and the darkly stained processes of the cells are readily recognizable in the canals. These canals are more readily recognized in hypertrophic nasal mucous membrane, and are here wider and are connected by transverse canals, so as to present, at times, a branching network. It is also easy to see here the relationship of these canals to the underlying connective tissue. In the latter, the adenoid layer is markedly developed, and one sees numerous thin strands of connective tissue rising obliquely towards the surface. These strands are separated by light spaces which contain numerous leucocytes, and pass directly into the canaliculi. The rows of leucocytes extend likewise directly into these latter.

The above-described light spaces in the adenoid layer are to be considered as markedly dilated channels, but whether in direct communication with the lymph spaces is uncertain. According to our previous knowledge, it is not probable. The fluid contained in these channels may therefore have a different character from lymph. Probably we have here to do with a fluid containing but little albumin, inasmuch as after hardening in Zenker's solution or in alcohol, one does not find evidence of coagulation in the spaces.

With regard to the significance of these basement canals it is in the first place unquestionable that they permit the passage of leucocytes through the epithelium to the surface.

Schiefferdecker believes that there is a continual passage outwardly of the fluids contained, and that the chief significance of this stream of fluid is to keep the surface of the ciliated epithelium moist. The fluid, therefore, on the surface of the mucous membrane, according to this view, must be composed of a mixture of glandular secretion, the secretion of the goblet cells and the fluid coming out through the basement canals. Schiefferdecker at the time of these observations, however, was unable to find serous glands in the nose, and regarded all the glands as purely muciferous.

CASE I. Patient, fourteen years of age, came with marked hypertrophy of left lower turbinate, which was cauterized with chromic acid. Two weeks later there was apparent, on examination, a moderate diminution in the size of the cauterized tissues, a small portion of which was excised.

On histological examination, the specimen shows a loss of epithelium on the free surface, although the basement membrane is still preserved. In places, new epithelial cells of a pavement type are found, particularly in the depressions and invaginations of the surface. Immediately below the rete mucosa, the most striking alteration is seen to consist in a marked formation of connective tissue, with relative diminution in the size and number of the venous sinuses and of the glands in the vicinity. Many of these latter appear to have suffered compression, the lumen of the efferent duct being nearly obliterated, while the cells of the glands show little or no secretion. In the deeper portions of the tissues the mucous glands and the sinuses show no notable change from that which one would expect in simple hypertrophy. In each collection of gland cells, about half the alveoli are composed of cells showing mucous degeneration of their cytoplasm, while the remainder are of the albuminous type. The canaliculi which normally are found in the basement membrane between the cells, and permit the passage of fluid from the deeper tissues to the surface, are no longer seen in the cauterized area.

CASE II. The patient, a woman of sixty, presented a marked hypertrophy of the middle and lower turbinates, probably of many years' duration. Repeated cauterizations of the lower turbinate had given no permanent relief to the symptoms of nasal obstruction. The lower turbinates, at the time of my examination, exhibited a general enlargement, most marked anteriorly, of the tissues covering the bone, which was itself apparently not enlarged. The surface of the turbinates yielded but slightly on pressure with the probe, and the mucous membrane was slightly reddened, smooth, and showed anteriorly irregular whitish lines of scar tissue, corresponding evidently with regions of previous cauterization. A portion of the lower turbinate was excised.

Histological examination of the specimen from the cauterized area showed a transformation of the superficial epithelium into cells of the pavement type. The basement membrane shows no canaliculi. Below the basement membrane there is a marked dilatation of the venous sinuses, presenting almost the appearance of an angioma. These are surrounded by compact fibrous tissue. The glands in the vicinity have largely disappeared, but traces of their former existence may be seen by small aggregations of glandular cells, showing little or no mucous secretion, with nearly complete obliteration of the gland ducts. The impression is produced upon the observer in this case of a marked persistence of the venous sinuses, which in spite of the cauterizations were sufficient to cause repeated swellings.

It seems probable that while the destructive applications were effectual in destroying the function of the columnar ciliated epithelium, and of the glands, little change was produced in the walls of the venous sinuses, except, perhaps, to cause irregular constrictions and consequent dilatations in the vicinity.

CASE III. The patient was a physician forty years of age, who for several years had been addicted to the use of cocaine, taken originally for blocking of the nose. During this time he had been repeatedly cauterized without permanent relief. The mucous membrane covering the lower turbinates showed a marked pallor, with irregular scars anteriorly, and considerable swelling, moderately firm in pressure with the probe. A portion of the mucous membrane and underlying soft tissue covering one turbinated bone was removed.

Examination shows histologically a transformation of the superficial epithelium into cells of the pavement type, from four to ten layers in thickness, resembling closely that which one would expect in atrophic rhinitis. There are no canaliculi in the basement membrane. Immediately below the compact layer of fibrous tissue of the rete mucosa and submucosa, there is found a marked increase in the size and number of the glands. These are closely aggregated, and occupy the greater portion of the field. The glands are made up chiefly of mucous cells, with dilated ducts, filled with mucus. Here and there in the deeper portions of the glands are found groups of cells of a serous type, as shown by the presence of secreting capillaries. The hypertrophy

FIG. 1. — Lower turbinate, 125 diameters, hematoxylin and Congo red. The specimen is from a case of hypertrophic rhinitis, which had received no previous local treatment. The columnar epithelium is seen to cover a well-defined basement membrane, below which are situated numerous glands and venous sinuses.

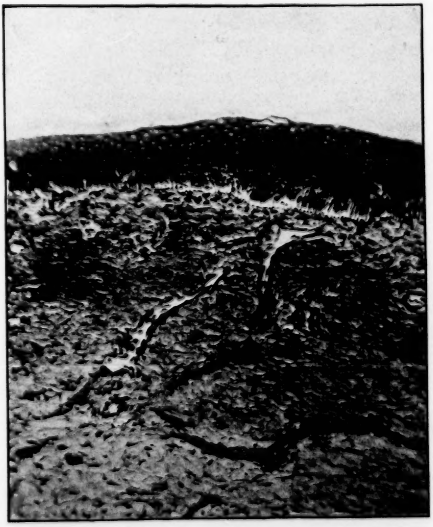


FIG. 2. — Lower turbinate, 125 diameters, hematoxylin and Congo red. The specimen is from a case of hypertrophic rhinitis, which had been previously repeatedly cauterized by chromic acid. A dense, pavement epithelium is seen to have replaced the columnar, ciliated epithelium, and the basement membrane has nearly disappeared. Below the mucous membrane, the glands have been obliterated, and the venous sinuses markedly reduced, the field being occupied by a dense, new-formed fibrous tissue.

FIG. 3. — Lower turbinate, 125 diameters, hematoxylin and Congo red. The specimen is from a case of hypertrophic rhinitis, which had been repeatedly cauterized superficially. The center of the field is occupied chiefly by dilated, glandular ducts, the orifices of which have been more or less completely occluded by cicatricial contraction. In this case the cystic dilatation of the ducts is a considerable factor in bringing about renewed swelling of the parts.

FIG. 4. — Lower turbinate, 375 diameters. Portion of mucous membrane removed from a case of hay-fever, showing clinically marked pallor and swelling with free watery secretion. The canaliculi of the basement membrane are seen to be increased in number and size, many of them containing emigrating leucocytes.

in this instance is evidently of a glandular form, and in spite of repeated cauterizations there has been no diminution in the amount of the tissue below the surface epithelium. Whether the predominance of the glands and of the mucous cells is due to the influence of cocaine or to the manner of cauterization is uncertain, but it seems in any event probable that the dilatation of the efferent ducts is dependent upon constriction of the orifices, resulting from the contraction of cicatricial tissue. Contrasted with the preceding case, the action of the cauterizations appears to have been more superficial, causing no loss of glandular tissue, but on the other hand more extensive alteration of the mucous membrane.

Case IV. This patient had been repeatedly cauterized one year previously, with chromic acid, for hypertrophy of one lower turbinate, and had returned for renewed obstruction. The turbinate now shows a white stellate cicatrix, anteriorly, corresponding to the area of cauterization, in the vicinity of which there is smooth hypertrophic mucous membrane. A portion of this cauterized area was removed, together with some of the tissue in the vicinity.

Histological examination shows over the cauterized region an epithelium consisting of four or five layers of cells of a pavement type, which pass rapidly into cells of the ordinary columnar, ciliated form, covering the summits of irregular mammillations. Immediately under the pavement epithelium there is a compact, dense layer of fibrous tissue, representing the rete mucosa and submucosa, below which are seen numerous glands, showing marked dilatation of their lumen. In the vicinity are seen several ducts, dilated to ten or twenty times the normal size, filled with mucus and lined with pavement epithelium. The glands show no infiltration of the cells in the vicinity, but are surrounded by dense strands of fibrous tissue. We have evidently here to do with a contraction of the orifices of the ducts by the fibrous tissue near the surface of the epithelium, with an enlargement of the ducts immediately below. That there has been pressure on the walls of the ducts from accumulation of their contents is rendered probable by the transformation of the columnar epithelium, which normally lines them into pavement epithelium. In the basement membrane no canaliculi are found.

In this case, we have a more marked development of the stage shown in Case III, namely, renewed swelling of the parts from dilatation of the lumen of the glands and their ducts. Similarly the cauterization exerted its effect chiefly upon the mucous membrane, and caused no actual loss of glandular tissue.

Case V. The patient, twenty-five years of age, was cauterized six months previously for hypertrophy of the right lower turbinates, which now shows a thin, white scar, covering the anterior end. There is considerable soft swelling in the vicinity. A portion of this was removed.

Histological examination shows over the cauterized area cells of the squamous type, overlying an area of dense, fibrous tissue, which extends downward for a distance of 4 mm. No canaliculi are found in the basement membrane. In the area of fibrous tissue there are no glands observable, but a small number of compressed ducts, lined with squamous epithelium, showing only here and there a central lumen. This area is traversed by a few small blood vessels, but nowhere by venous sinuses. In the immediate vicinity of this fibrous area, one comes upon numerous large, closely aggregated glands, separated by a delicate fibrous reticulum, and by comparatively small, thin-walled, venous sinuses. The glands in this region are chiefly of the mucous type, showing only here and there alveoli with serous cells. In this instance the cauterization has evidently penetrated deeply, and caused marked destruction of the more superficial glands and venous sinuses. In the region adjoining the cauterized area, the new hypertrophy is evidently due to an increase in the number of the mucous glands. There is no evidence here of compression of the glands by occlusion of their orifices.

Case VI. The patient, a man thirty-two years of age, had had chromic acid applied for swelling of the right lower turbinate, one month ago. There is now no evident scar over the cauterized area, which appears moderately enlarged, reddened, yielding moderately on pressure.

Examination of a portion of the tissue from the cauterized area shows the epithelium to consist of five or six layers of the cells of the squamous type, below which is an increased amount of fibrous tissue, sending down irregular, thickened bands between the collections of glands and between the venous sinuses. No canaliculi are found in the basement membrane. The glands in this region show an increased compactness of the alveoli, and exhibit but little mucous secretion. Close examination renders it probable, nevertheless, that the majority of these glands are of the mucous type, and not the serous, since only a few contain secreting capillaries.

In this instance, we see the effect of a single, comparatively superficial cauterization of the mucous membrane of the lower turbinate. Little has apparently been accomplished beyond a change in the character of the mucous membrane and the production of a certain amount of new connective tissue immediately beneath.

We may summarize the histological phenomena of the preceding cases as follows:

(1) Caustic applications to the nasal mucous membrane may cause a loss of the columnar, ciliated epithelium, with a replacement of this by cells of a squamous type.

(2) Such applications may cause an obliteration of the canaliculi in the basement membrane.

(3) Immediately below the cauterized mucous membrane, new connective tissue may be formed, which extends downward to a depth dependent upon the intensity of the trauma.

(4) The contraction of the tissues which is observed clinically to follow caustic applications is due to the contraction of this new-formed connective tissue, and the consequent compression both of the lymph sinuses, and of such cavities as the lumina of blood vessels and glands.

(5) Repeated superficial applications of caustics tend to the formation of connective tissue immediately beneath the epithelium, which by its contraction may constrict the lumen of the ducts of the glands, and lead to cystic dilatation of the latter. This phenomenon may, as in Cases III and IV, contribute to a subsequent return of the nasal obstruction. Such applications become progressively of less avail, owing to the relatively impervious barrier presented by the pavement epithelium and compact fibrous tissue immediately beneath.

Taking the preceding phenomena as a guide for clinical practice, let us determine which of the changes may be considered beneficial and which harmful to the physiological functions of the nose.

A distinct benefit may in the first instance be regarded as accruing from the contraction of a relaxed mucous membrane. The term relaxation is here employed to denote those conditions found chiefly in the lower turbinate, and to a less extent on the septum posteriorly, characterized by a smooth swelling of the mucous membrane, dimpling on pressure, and contracting noticeably on the application of cocaine or adrenal extract. Such conditions consist histologically in proliferation of the mucous membrane together with an enlargement of the lymph spaces and venous sinuses. Where such relaxations or congestions produce intermittent alternating nasal stenosis, the proper application of a caustic to the lower turbinate anteriorly may be recommended.

Secondly, in conditions characterized by excessive secretion of mucus from the posterior nares, where, with healthy sinuses, we find on posterior rhinoscopy relaxation of the mucous membrane of the septum, or of the lower turbinates, we may on theoretical grounds expect a diminution in the amount of discharge to result from caustic applications, if so made as to obliterate a definite number of canaliculi and of glands in the affected parts. This improvement may be repeatedly observed in suitable cases.

Third, in vasomotor rhinitis, the removal of anterior obstructions in the nose is indicated for the following reason: During nasal inspiration a negative pressure[9] occurs in the nasal passages, the amount of which is in inverse ratio to the freedom with which air is able to enter the anterior nares. This inspiratory rarefaction is thus greater in the presence of a partial anterior obstruction such as a spur or collapsed alæ, or enlarged lower turbinate. Such an abnormal diminution in air pressure must cause a heightened flow of fluid, both of blood and of lymph, into the tissues immediately behind the obstruction, with the result of adding to the severity of the vasomotor symptoms. On the other hand, the restoration of anterior patency would theoretically lessen the lymphatic and vascular distention in the nasal mucous membrane and would influence beneficially the symptoms under consideration. This hypothesis is supported by clinical experience in a large number of cases. In vasomotor rhinitis of moderate severity, one often finds that the removal of anterior obstructions affords marked relief to the symptoms, and on these grounds a caustic application, properly made, to the relaxed mucous membrane of the lower turbinate anteriorly may be recommended.

We now turn to a consideration of the injurious effects which may be produced by caustic applications to the nasal mucous membrane. As we have seen, the most conspicuous alterations are superficial and extend downward in progressively diminishing intensity.

In the first place, the destruction of the ciliated epithelium, over the cauterized area, represents the impairment of an important function of the nose, namely, the expulsion by the cilia of inspired foreign particles from the mucous membrane.

Secondly, the obliteration of the canaliculi in the basement membrane prevents the normal outward flow of fluid intended to moisten the surface of the epithelium. As I have elsewhere shown,[1] the largest portion of the aqueous vapor given off by the nasal mucous membrane comes through these canaliculi of the basement membrane. Their obliteration will, therefore, be followed by a corresponding failure of the inspired air to receive its normal amount of moisture. It will thus be seen that caustic applications to the nasal epithelium will be followed by a distinct diminution in the amount of water imparted to the inspired air. The dryness of the nose and throat, of which hay fever patients complain, who have received much caustic treatment, may be attributed largely to the loss of canaliculi in the basement membrane.

Another injurious effect proceeding from caustic applications is the secondary enlargement of the tissues due to cystic dilatation of the ducts of the glands which may result from stenosis of their orifices.

Below the mucous membrane the alterations induced consist essentially in a more or less complete obliteration of the blood vessels, lymph channels and glands, with their replacement by connective tissue. Such changes are likely to influence the amount of heat imparted to the inspired air and the amount and character of glandular secretion.

A diminished blood supply would result in a lessening of the warming power of the nasal mucous membrane, but this is not likely to be as sufficiently pronounced as to prove more than a theoretical detriment to the individual. So far as glandular secretion is concerned, there is probably already an excess, and a diminution is likely to prove beneficial rather than harmful.

Having now reviewed the immediate and remote alterations produced in the nasal tissues by cauterization, we are in a position to determine the proper mode of making such applications. In the first place, if the object is to contract a relaxed or distended mucous membrane, we should endeavor to reach the submucous and deeper layers where the lymph spaces and blood vessels are chiefly situated, producing at the same time the minimum amount of disturbance to the mucous membrane itself. This result is best attained by deep linear applications, as narrow as possible, of chromic acid, or of the galvano cautery, or by submucous cauterization, which is an admirable and most effective method. On the other hand, if we seek to diminish the amount of nasal fluid, as in certain forms of excessive post-nasal secretion, we may advantageously sacrifice a certain number of canaliculi in the basement membrane by broad, superficial applications to a definite area of the septum and lower turbinates posteriorly.

Finally, in the event of recurrence of enlargement after cauterization, we should remember that a more impervious and resistant mucous membrane probably exists, together with a proportionately greater amount of connective tissue

than originally was present, and that consequently each subsequent cauterization is less likely to bring about contraction of the parts. Under such circumstances, it is probably best to dispense with further cauterizing and proceed immediately to the excision of a definite amount of obstructive tissue.

BIBLIOGRAPHY.

[1] J. L. Goodale: A Contribution to the Study of the Secreting Mechanism of the Nose. Proceedings of the American Laryngological Association, 1904.
[2] Koelliker: Gewebelehre: Sechste Aufl.
[3] P. Schiefferdecker: Histologie der Schleimhaut der Nase, in Heymann's Handbuch der Laryngologie, Bd. iii, Lief. i. s. 87.
[4] G. Retzius: Ueber die Anfänge der Dürsengänge und die Nervenendigungen in den Speicheldrüsen des Mundes. Biolog. Untersuch., Neue Folge iii, 1892.
[5] E. Müller: Ueber Sekretkapillaren. Archiv. f. Mikros. Anat., Bd. 45, s. 447, 1896.
[6] S. Fuchs-Wolfring: Ueber d. feineren Bau der Drüsen des Kehlkopfes und der Luftrohre. Archiv. f. Mikrosk. Anat., Bd 52, 1898.
[7] Heiberg: Cited by Schiefferdecker in above article.
[8] Chatellier cited by Schiefferdecker.
[9] J. L. Goodale: An Experimental Study of the Respiratory Functions of the Nose. BOSTON MEDICAL AND SURGICAL JOURNAL, Nos. 19, 20, 1896.
[10] P. Stoehr: Ueber Randzellen u. Sekretcapillaren. Archiv. f. Mikrosk. Anatomie, Bd. 47, 1896.

STANDARD RECORDS OF THE LEUCOCYTES IN NORMAL BLOOD FOR REFERENCE IN CLINICAL WORK.

BY HENRY F. HEWES, M.D., BOSTON.

ONE of the chief purposes for which the examination of the blood is utilized in clinical work is the determination of the presence or absence of the condition of leucocytosis, its extent and type.[1]

For this complete determination it has been, until recently, almost universally the custom to employ two methods of examination: (1) The count of leucocytes by the blood counting apparatus to determine the *existence* or non-*existence* of the leucocytosis or, technically speaking, of an actual increase in the number of leucocytes; (2) the differential count of a stained specimen to determine the *type*. With recent advances, however, it has been found possible and much labor saving to make the determination of both points the existence and the type, of the condition, by the employment of the latter method, the examination of a stained specimen alone.

By this custom it is possible to do all the work with one method, and this the same method by the use of which most of the other important facts for which blood examination is utilized in diagnosis, as the presence of malaria, or of the Leukemias and Pernicious Anemia are determined.

The method of determination as to leucocytosis by the examination of a stained specimen consists of the counting of the number of leucocytes in a given number of microscopic fields of the specimen under examination, one or two hundred fields, and the comparison of the record with standard records of normal blood examined in a similar manner. If the number present exceeds the normal averages we have a leucocytosis.[2] If leucocytosis is present its extent may be judged by the extent of the count over the normal figures.

Given that, we have a leucocytosis as evidenced by this finding of a leucocythemia, its type may be determined by a differential count on the same specimen.[3]

The advantage from the point of view of practical work of doing the leucocyte work entirely by this study of the stained specimen in this manner must, I think, be clear to everybody.

For the successful introduction and use of such a method it is first necessary to have a thorough test of the accuracy of the method by control experiments.

If it is demonstrated by such experiments that the method gives indication in regard to the number of leucocytes present in a given case approximating in accuracy those of the method of the count of corpuscles by the blood counting apparatus or sufficient to settle in the case the question of the existence or non-existence of a leucocytosis, the usefulness of the method is proven.

There remains then (after the above proof), necessary for the use of the method in general work, simply a set of standard records showing (1) the normal findings, and the variations in these determined by the application of the method to a considerable number of normal individuals, and (2) the correspondence between given figures obtained by this method and those of the white count, so that not only the existence but the extent of a given leucocytosis may be determined by the method.

To make these necessary tests of the accuracy of this method of leucocyte determination and also to obtain a set of standard figures similar to those described for my own use in clinical work I have for two years been conducting an investigation upon a considerable number of normal individuals.

The individuals utilized were all young men students at the Harvard Medical School.

Thirty individuals in all were studied, ten from each of three classes at the school.

In each case there were made from specimens of blood (taken at one time) a count of the number of leucocytes per cubic millimeter by the Thoma-Zeiss apparatus, a count of the number of leucocytes in two hundred fields of a good stained specimen, and a differential count of two hundred leucocytes.

In the first set of investigations (10 men) the blood was taken at 11 A.M., in the second set (10 men) it was taken at 4 P.M., in the third set (10 men) records were made from blood of the same individuals taken at both 11 A.M. and 4 P.M.

[1] In defining the meaning of the term leucocytosis, I follow the teaching of Ehrlich. A leucocytosis is an increase in the total number of any of the recognised forms of leucocyte in the blood over the normal number of this leucocyte. Thus the presence of 1,000 eosinophiles in an individual whose normal limit of these cells was 500, means a leucocytosis of eosinophiles — the presence of 10,000 ventrophiles where the normal maximum was 7,500, means a leucocytosis of neutrophiles, etc.

[2] The finding of an increase in the total number of leucocytes over normal is always, of course, a leucocytosis of one or another type.

[3] It must be borne in mind that it is possible to have a leucocytosis without a total increase of the number of leucocytes above the normal limits. This is a rare occurrence, save with the eosinophile leucocytosis. Here, owing to the normally small numbers of these cells, we may have an increase of 50% in eosinophiles in the blood without forcing the white count over the maximum normal limits of 14,000. Such a leucocytosis can be discovered by the differential count.

For the study of the stained specimens a Leitz microscope with one-twelfth immersion lens, and a No. 3 eye-piece was used. The microscopic tube was pushed in to the limit.

In the count by fields of a stained specimen, those specimens were selected where the spread was of such a thickness that the red corpuscles did not overlap each other and yet lay evenly in the fields keeping their normal contour and showing their pale central areas. In several cases both thin and thick spreads were counted.

In the differential counts the classification of the leucocytes published by me in the *Boston Journal of Medical Sciences*, February, 1898, dividing the leucocytes into the three color varieties, Basophiles, Neutrophiles and Oxyphiles (Eosinophiles) was used.

The records of the cases may be seen in the following tables:

		Leucocytes per cubic millimeter of blood, Thoma-Zeiss count.	Leucocytes per 100 fields of stained specimen (average of 200 fields).	Differential count, per cents. from count of 200 leucocytes.			
				Basophiles.	Neutrophiles.	Oxyphiles.	Mast cells.
11 A.M.	1	6,200	41	38	62	0	
	2	7,000	48	40	58	1.5	0.5
	3	7,200	45	38	61	1	
	4	8,100	54	37	52	1	
	5	8,400	52	36	60	3	1
	6	9,000	60	37	61	2	
	7	9,300	59	22	75	3	
	8	10,100	68	35	62.5	2	0.5
	9	11,000	74	34	65.5	0.5	
	10	11,500	70	40	59	1	
	11	9,800	67	32	67.5	0.5	
	12	10,200	70	40	69	1	
	13	11,000	74	35	63	1.5	0.5
	14	12,200	80	34	64	3	
4 P.M.	15	12,600	84	23	74	2	1
	16	12,600	80	31	63	6	
	17	13,100	87	38	61	0.5	0.5
	18	13,200	84	45	54	1	
	19	14,200	90	43	56	0	1
	20	14,800	88	39	60	1	
	21	A.M. 7,300	44	31	68	1	0
		P.M. 12,000	84	34	66	0	0
	22	A.M. 8,000	56	24	75	0.5	0.5
		P.M. 12,000	80	21	78	0	0
	23	A.M. 8,200	51	35	61	3	1
		P.M. 12,400	86	29	70	0.5	0.5
	24	A.M. 8,300	54	49	50	1	0
		P.M. 12,300	80	44	54	1	1
	25	A.M. 9,200	55	46	53	1	0
		P.M. 10,000	66	49	50	1	0
	26	A.M. 10,200	73	30	68	1	1
		P.M. 14,000	87	26	73	1	0
	27	A.M. 10,400	66	35	62	2.5	0.5
		P.M. 13,600	82	38	59	3	0
	28	A.M. 11,500	70	45	52	2.5	0.5
		P.M. 14,800	84	43	53	3	1
	29	A.M. 12,000	81	32	65	3	0
		P.M. 12,600	81	38	56	6	0
	30	A.M. 18,100	117	23	74	3	
		P.M. 15,600	98	30	67.5	1.5	1

A study of this table gives definite and conclusive evidence in regard to the first point under investigation, the accuracy of the method of counting by fields in a stained specimen for determining approximately the number of leucocytes, or for purposes of clinical study, the existence or non-existence of a leucocytosis.

As you see, the records of such count by fields correspond with an accuracy quite sufficient for purposes of diagnosis with the records of the count by the Thoma-Zeiss apparatus, the smaller and greater figures in both columns corresponding in every proportion, in fact with an evenness quite remarkable, considering the roughness of the method. That is, from these results the main fact as to the accuracy of the method in the hands of an experienced student may be considered proven.

In regard to the second point of investigation, the establishment of a set of standard records of normal blood studied by this method, for comparative use in clinical work the results give the following finding:

The figures obtained by the study of stained specimens of blood of a considerable number of normal individuals examined at two definite periods of the day, the mid-forenoon and the mid-afternoon, indicate that the number of leucocytes as counted in microscopic fields of a definite size of the stained specimen vary from a minimum of 41 in 100 fields, or 0.35 per field in the forenoon, to a maximum of 90 or 0.9 per field in the afternoon, as the actual number of leucocytes per cubic millimeter counted by the white counts in the same individuals vary from a minimum of 6,200 in the forenoon to a maximum of 14,800 in the afternoon. In the records of 30 individuals the number falls below 50 in but four cases, all forenoon records. It rises above 85 in six cases, all afternoon records.

The limits for forenoon records are from 41 to 81, two cases only running over 70.

The limits of afternoon records are from 66 to 90, but two cases running below 70.

A standard normal rule for use in clinical work as taken from these results would, therefore, read as follows: *In an estimation of the leucocytes by the method of the count by fields of a stained specimen the number of leucocytes lies as a rule in normal blood during the twelve day hours, between* 40 *and* 90 per 100 *fields, the higher numbers occurring regularly in the afternoon. A record exceeding* 90 *per* 100 *fields in a good specimen at any time of day is, therefore, suggestive of a leucocytosis. A record of* 100 *leucocytes or one per field, is a certain indication of leucocytosis. A record of over* 80 *in a forenoon count is suggestive of leucocytosis, and indicates a further investigation in an afternoon count.*

As to the question of the actual number of leucocytes per cubic millimeter represented by a given count of a stained specimen a study of our table indicates that a record of 50 leucocytes per 100 fields, or 0.5 per field, is equivalent to about 8,000 leucocytes per cubic millimeter (from 7,500 to 9,000) a record of one per field is equivalent to about 16,000 per cubic millimeter (15,000 to 17,000).

Too exact computation on these lines must not

be attempted, but the table records certainly indicate that such computation will bring us within 2,000 of the actual count, a result quite accurate enough for a diagnosis of the existence or non-existence of a leucocytosis and approximately of its extent.

The result of this investigation then indicates that in this method of the count of leucocytes by fields in a stained specimen of blood for the determination of the existence of the condition of an increase in the number of leucocytes (a leucocytosis) in a given case, we have a method of great practical use in medicine. The records obtained from this investigation will serve for standard records for the normal, for all work done by this method where microscopic fields of the same size used here are employed. They are, of course, of no such value except under such a condition. To fit himself for the application of this rapid method of blood examination in his practice, each man should make a set of records from the examination of specimens of normal blood with his own microscope, thus correcting his technique, and standardizing his microscope. In this way he will obtain a set of standard normal records for his own use.

There are some further points brought out by this investigation which should be noted as of some value in the study of the leucocytes. The first is the variation in the number of leucocytes in an individual during the day.

As can be seen by a review of the table the number of leucocytes is almost invariably (one exception only being found) higher in the mid-afternoon than in the mid-forenoon in the same individual. As a rule this increase in the afternoon record over the forenoon was, in my records, from 3,000 to 4,000.

This point and its cause or causes has been fully investigated by other workers. I call attention to its demonstration in my results simply for the importance of the observation in connection with clinical work. In determining the presence of slight degrees of leucocytosis in our cases, we must bear this fact in mind. Thus a record of 90 leucocytes per 100 fields in blood taken in the afternoon may be perfectly normal, while in a morning specimen it may indicate a leucocytosis.

A second point to which I wish to call attention is the records of the differential counts.

These records show the normal proportions of the various forms of leucocytes as judged by this study of 30 normal individuals at different periods of the day to be as follows:

Basophiles	Lymphocytes, Large mononuclear cells, Transitional cells,	21 to 49%
Neutrophiles,		52 to 78%
Oxyphiles (eosinophiles),		0.5 to 6%
Mast cells,		— to 1%

In regard to the relation of the differential counts to the actual counts as studied by these records, it can be stated definitely that there is in normal conditions no definite variation in the character of the differential count corresponding to a variation in the number of the corpuscles per cubic millimeter, or between the forenoon and afternoon. That is, the same man may have identical differential counts in two specimens of his blood in which the actual count varies 3,000 to 5,000 per cubic millimeter, as in cases 27, 21, 26, 24. No definite high proportion of neutrophiles or low proportion of basophiles as an associate of the higher leucocyte counts, or of low neutrophile and high basophile proportion with low counts, can be determined.

Whether this finding has any bearing upon the practice of determining the existence of a leucocytosis in stained specimen by finding a high per cent. of neutrophiles, I cannot say. This can be determined only by carefully controlled investigation of specimens of leucocytosis blood along these lines. In my own experience such a method, though accurate for marked cases of leucocytosis, often gives inaccurate results in mild degrees of the condition, especially cases of neutrophile leucocytosis, that is in cases with 16,000 to 24,000 leucocytes. It is to be utilized only for the determination of oxyphile leucocytosis where it is not unusual to have an actual increase of oxyphiles associated with a total number of leucocytes of normal dimension.

AN IMPROVED METHOD OF END TO LATERAL INTESTINAL ANASTOMOSIS. A NEW MATTRESS STITCH.*

BY ALFRED H. GOULD, M.D., BOSTON,

For the Division of Surgery of Harvard University; From the Surgical Laboratory of the Harvard Medical School.

AFTER two years of research upon the animal and upon the cadaver, with a view to simplifying gastro-intestinal technic, certain useful improvements have been worked out. The new technic has been used over and over in the writer's course in Experimental Intestinal and Gastric Surgery until further trial seems unnecessary. A series of four papers will be published in this journal illustrating changes in technic, the first article appearing in this number under the above title.

After resection of the ileo-cecal valve, and certain other operations, it is desirable to implant the cut end of the small intestine into the side of the colon. A lateral anastomosis is very effective; but it requires the closure of the two blind ends. An operation is described below which joins the end of the small intestine to the side of the large. The old method of joining the two at a right angle, using the gastro-enterostomy technic, is defective, because it creates a stricture at the joint. It will be seen that, by trimming the entering end of the ileum obliquely, the anastomosis will be made at an acute angle with the colon, while the size of the anastomotic opening will be larger than the caliber of the ileum. This decreases the danger of stricture formation at the site of the suture.

* First paper of series.

The open intestine to be implanted is first split along its free border for about 1½ inches, and the corners, which project, are trimmed down with scissors, so that an oblique opening is left with edges rounded out at the mesenteric border. The reason for rounding the edges instead of cutting them straight is that it allows more tissue for sewing at the mesenteric border. The receiving intestine is opened on its free edge for about two inches, and, the distal end of this cut is fastened by a mattress stitch to the mesenteric border of the entering bowel. Guides are now

FIG. 1. — Shows method of application of first mattress stitch. Dotted line on small intestine indicates line at which corners will be cut off. Small dots on edges of large and small bowels show points where first two guides are placed.

FIG. 2. — The first mattress stitch has been tied and the first two guides pulled tight. The mesenteric third of the circumference of the small intestine has been approximated to a symmetrical portion of the edges of the cut into the colon, by an over and over stitch. The third guide has been loosely introduced to show the correct position.

FIG. 3. — Suture nearly completed, sero-muscular layers being approximated by new mattress stitch.

FIG. 4. — Old mattress *A* brought to *A*. New mattress *B* brought to *A*.

placed, with the ends left inside in such a way that they will invert the cut edges and expose the mesenteric third of the entering bowel side by side with a symmetrical portion of the cut edges of the receiving bowel. This portion of the circumference is, usually, hard to approach, but, upon tightening the guides, the remainder of the circumference falls away and allows easy introduction of the first layer of stitches. This layer is a continuous over-and-over, No. 0 chromic stitch which starts from one guide and goes directly across to the other, piercing all coats. When the second guide is reached, other guides are placed on the sides at regular intervals to assist in accurately matching the cut edges. When the free ends of the dorsal cuts are reached they are altered to make them fit one another, and the suture continued around to the opposite side, where it is tied to the long end left at the beginning of the stitch.

The second step is the introduction of an interrupted sero-muscular stitch. The mattress stitch is very valuable for this purpose, but the original Halstead stitch has the disadvantage of not rolling in the peritoneum when it is tied, thus losing the most important quality of the Lembert stitch. The writer has modified the mattress stitch by placing the loop near the cut edge. This rolls the protruding edges down and approximates the peritoneum without the necessity of tucking in. This change might be applied to both sides of the stitch except for the objection that it places the knot between the apposed peritoneal surfaces.

The technical details which may be considered original in the above operation are the following:
(1) Method of trimming the invaginating gut.
(2) Method of placing first layer of stitches.
(4) New mattress stitch.

BACTERIAL COUNTS OF BOSTON'S MILK SUPPLY.

BY HIBBERT WINSLOW HILL, M.D.,
Director;
AND
FRANCIS HENRY SLACK, M.D.,
Second Assistant Bacteriologist, Boston Board of Health Laboratory.

ON April 29, 1904, the following regulation in regard to the milk supply was adopted by the Boston Board of Health: "No person by himself or by his servant or agent, or as the servant or agent of any other person, firm or corporation, shall bring into the City of Boston for purposes of sale, exchange or delivery, or sell, exchange, or deliver any milk, skimmed milk, or cream which contains more than 500,000 bacteria per cubic centimeter or which has a temperature higher than 50° F."

To secure the enforcing of this regulation, the Boston Board of Health in April, 1904, authorized the preparations for making the necessary bacteriological counts, etc., the results of these counts being placed in the hands of Dr. Charles Harrington, Chief of the Bureau of Milk Inspection, for use in the notification, prosecution, etc., of cases of infringement.

The month of May was used in procuring and standardizing the necessary apparatus and in general preparation for the summer's work. The method decided upon after consideration of those employed in about fifteen laboratories throughout this country was as follows: For media, 1½% nutrient agar (B. C.), 10 cc. to a tube,

reaction plus 0.7. The collection outfit was devised anew and consists of a case for carrying the samples made of copper with double walls interlaid with ½-inch felting. This case is divided into three compartments: the central one for samples, the other two for ice. When iced and closed, a constant temperature of 34° F. is maintained. The samples are carried in sterilized test tubes, the compartment holding eight racks of four tubes each. A smaller case was also made holding but three racks. These racks are made from copper tubing as suggested by one of us. (H. W. H.) Holes in the partitions of the case allow the ice water to circulate around the bottoms of the tubes. The use of the test tubes for carrying samples was suggested by S. C. Keith. For collecting, glass pipettes are used. These are carried in a detachable copper case, adapted for sterilizing, divided into two compartments, the upper for fresh sterile pipettes, the lower for the pipettes after use.

For plating the samples, the agar, after being melted, is kept in a water bath between 40° and 45° C. until needed. In order to bring down the actual number of colonies in a plate to a countable figure, a standard dilution of 1 to 10,000 is used. For dilution water, square eight-ounce bottles marked at 100 cc. are used. This water is sterilized in the autoclave under 15 pounds steam pressure for twenty minutes at a temperature of about 250° F. Two bottles are used for each sample, giving a dilution of 1 to 10,000 with 1 cc. of milk. Each dilution is shaken 25 times for thorough mixing, as is also the sample. A sterile pipette marked to contain 1 cc. and calibrated in the laboratory is used at each stage, three being required for each sample. After expelling the milk into the first bottle, the pipette is rinsed to the 1 cc. mark in the dilution water; 1 cc. from the first dilution bottle is transferred to the second dilution bottle; then 1 cc. from the second dilution bottle is transferred to the petri dish. The agar is then carefully added, mixed with the diluted milk in the plate and allowed to harden.

The plates are incubated in a saturated atmosphere at 37° C. for twenty-four hours. The colonies in a saturated atmosphere are not only more numerous, as shown by Whipple, than in a dry atmosphere, but also larger and therefore more easily counted; 37° C. is used in preference to room temperature because the latter requires more time for satisfactory development of the colonies, and is also so variable as to give no standard for the comparison of results. The twenty-four-hour incubation is used in preference to the forty-eight-hour because, though the latter shows a slightly higher average count, the counts are not sufficiently higher to materially change the report. One thousand consecutive plates incubated at 37° C. and counted at twenty-four and forty-eight hours gave the following results:

Six hundred seventy-nine or 68% showed an increase in the number of colonies at the forty-eight-hour count.

In 195 or 19.5% the count remained the same; 126 or 12.6% showed a decrease.

Seven hundred ninety-nine or 80% of these plates had counts below 100.

The average twenty-four-hour count on these plates was 15½; the average forty-eight-hour count 18¼.

One hundred ninety-three or 19% had between 100 and 1,000 colonies averaging at the twenty-four-hour count 275, and at the forty-eight-hour count 283.

Eight plates, about 1%, had over 1,000 colonies each, averaging 1,287 at the twenty-four-hour and 1,334 at the forty-eight-hour count.

Only 13 plates changed their relation to the legal limit, 9 going from below to above 500,000 and 4 decreasing.

In many plates, the count is lower with the forty-eight-hour incubation on account of small colonies becoming obscured in the growth of larger ones. There are also more spreaders.

This annoying difficulty with spreaders, frequently met with even in the twenty-four-hour plates, we now overcome by the use of earthen-ware petri covers suggested by one of us. (H. W. H.)

Spreading seems to be caused principally by water condensing on the petri-covers and agar. The dry porous earthenware covers absorb this condensation water, still leaving the atmosphere saturated, as proven by the large size of the colonies. Organisms having an inherent tendency to spread from unusual motility are not prevented from spreading by this method.

Counting. — A box, a child's slate, a reading glass and a "lumber counter" are used.

The box is 6 x 6 x 5 inches, with open bottom, glass front, and a four-inch circular opening in the top, painted black within and without, except the glass front.

The slate has a circle cut in the surface, 4½ inches in diameter, divided into 10 equal segments, the lines filled with red lead.

The reading glass is a common four-inch lens magnifying about two diameters.

The petri dish is placed over the circle on the slate and uncovered. The box fits over the circle, the reading glass over the box, thus protecting the plate, keeping a constant focus and setting both hands of the operator free.

A slight pressure of the thumb for each colony seen, on the lumber counter, accurately adds and records the count. As the dilution is 1 to 10,000, the actual count must be multiplied by 10,000 to obtain the number of bacteria in 1 cc. of the milk.

Having thus briefly outlined our laboratory methods for the collection and examination of milk samples, it is of interest to consider the milk itself, those who deal with it, and the various processes it goes through before reaching the consumer:

Boston's milk supply comes from dairy farms situated all over New England. It is impossible for each of these farms to be directly under our supervision, yet to secure a clean milk supply, these producers must be induced to procure clean milk.

Clean dairymen, clean cattle, clean barns, clean

utensils, clean handling and proper cooling are necessary.

Reform in these directions can be most readily accomplished through the dealer, who, being fined for dirty milk, will be forced either to educate his dairymen, regularly inspect the milk and handle it in a proper manner himself, or leave the business.

Dealers may be divided into five classes:

First: The large contractor who deals in milk by the train load, controlling the buying in districts situated along his line of road, and selling to stores, restaurants and milk pedlers as well as direct to consumers.

Second: The small contractor who collects one or two car loads from some particular town or section, selling to stores, restaurants, milk peddlers and direct to consumers.

Third: The independent dairyman, owning a dairy farm in or near the city, and selling direct to the consumers.

Fourth: The milk peddler who purchases a certain number of cans each day from the contractor, selling to stores, restaurants and direct to consumers.

Fifth: The store or restaurant buying from the contractor or milk peddler and selling direct to consumers.

Beginning the first of June, samples have been taken continually. Most of these samples have been secured from the milk as it arrives in the city. Such samples as have been taken from stores show that the average storekeeper has yet to learn how to properly care for milk. This part of the work will soon receive more attention.

This table shows temperature of samples taken in June, July, August and September.

Month.	Number of Samples Taken.	Between 30° and 40°.	Between 40° and 50°.	Between 50° and 60°.	Between 60° and 70°.
June	539	2.25%	68 %	27.75%	2 %
July	620	1.50%	49 %	38.50%	11 %
August	626	4 %	39 %	47.25%	9.75%
September	609	8 %	43 %	43.50%	5.50%
Totals	2394	4 %	49.25%	39.50%	7.25%

This table shows number of samples taken, with results, for June, July, August and September.

Month.	No. of Samples Taken.	Below 100,000.	Between 100,000 and 500,000.	Between 500,000 and 1,000,000.	Between 1,000,000 and 5,000,000.	Above 5,000,000.	Unaccountable Spreaders.	Below Law-Limit.	Above Law-Limit.
June	539	49 %	23 %	7.5 %	13 %	5.5%	.2 %	72 %	26 %
July	620	29 %	33 %	12 %	15 %	10.5%	.5 %	62 %	37.5 %
August	626	46 %	31 %	9 %	11 %	2.5%	.5 %	77 %	22.5 %
September	609	45.5%	30.5 %	10.5 %	12 %	1.5%		76 %	24 %
Totals	2,394	42 %	29.75%	9.75%	12.75%	5 %	.75 %	71.75%	27.50%

The greater part of the milk is brought to the city in 8½ quart cans, but in some cases cans holding over 20 quarts are used for special purposes. When the milk reaches the contractor, it is supposed to be from six to eighteen hours old. A few contractors deliver this milk at once to the consumer; the majority, however, after mixing, store it in ice until the following morning. Milk should be cooled at once after milking. Rushed warm from the dairies and allowed to stand for hours at some country depot, then thoroughly cooled on the cars, it often reaches the city with a temperature of 40° F. and a bacterial count of several millions. Occasionally a contractor with an extra supply of milk on hand will keep some over to the third day before being delivered, and on the evening of the fourth day it is sold in the tenement districts.

The contractor takes more care of the milk which is to be bottled for family trade than of the rest of the milk, and it is safe to say that if the same solicitude were shown for all the milk as for that used for the family trade, there would be very little milk coming to the city that would not be within the present standard. There are a number of places in the City of Boston where carloads of milk arrive in which it would be difficult to find a sample containing over 500,000 bacteria per cc. Since this care can be and is taken for a certain portion of the milk, why should it not also be extended to the rest?

Mixing the milk is a custom generally followed, as it furnishes a fairly standard supply from day to day; the law has, in fact, forced this by requiring a certain standard of fats and solids. Some dairies mix the milk before putting it into cans in order that every can may show an average product. Some milk is mixed or even pasteurized in the towns where it is collected before being sent to the city. The milk peddler who purchases of the contractor, taking his supply directly from the cars, usually has a mixing room and ice chest connected with his stable. The contractor himself mixes the milk in large quantities, keeping a separate mixer for the family trade. The milk is usually strained as it is poured into the mixer; variations are seen in this from no strainer at all to several thicknesses of cheesecloth or cotton. In summer, millions of flies hover around some of these mixing rooms. Indeed, when the cans are opened dead flies from the farms are sometimes found in them.

Tasting is a necessary part of the program for the detection of the poor milk, poor, that is, from the standpoint of taste, which must be set aside. The methods are many — one man asserts that by lifting the can and taking a sip, the sense of smell is also educated to detect poor milk. Some

sip the milk from a ladle. A spoon is frequently used, the only cleansing it receives being on the visit to the mouth between cans. Licking the under part of the stopper is a practice generally followed, the stopper being then thrown into a box, the mixed milk drawn off into the emptied cans, and the dirty stoppers again inserted. It is said that one milkman arranges his cans in a row, removes the stoppers, inserts a finger with great dexterity into each can and thence to his mouth in rotation. In one place, the largest cans are tasted by dipping in the hand instead of a ladle. It is easy to see how a taster with diphtheria in his throat, or typhoid on his hands, might infect a whole community. So long as these methods are allowed, only healthy men should be permitted to taste milk, but the methods should be changed. In want of a better device, a supply of common wooden tongue depressors would do, carried in a double box; the clean on one side, the used on the other. These could be bought at a trifling cost and easily cleansed. One man has suggested the use of paraffine straws. Most of the tasters spit also. To see tasters spitting the milk from the mouth in the midst of the open cans, even though care is taken not to spit into the same, is not an agreeable spectacle for the prospective consumer.

Pasteurization is carried on by but few Boston contractors, and even by them not for their whole supply. The milk is in the pasteurizing machine about four minutes, and passes through three processes. First, it is heated to about 165° F., then cooled by ice water, and finally cooled by brine. Milk keeps much longer after this process because most of the bacteria are thus destroyed. However, a milk kept sweet by cleanliness and cold is much to be preferred to a pasteurized supply filled with lifeless organisms and their by-products. One contractor wishing to show what interest he took in furnishing a bacteria-free supply of milk to his patrons showed a report from a bacteriologist stating that the milk before going through the pasteurizing process at his plant in a distant town contained 7,000,000 bacteria per cc.; after the process but 4,000. Consider for a moment the condition this milk was allowed to reach before pasteurization was used to prevent further development.

The milk can may be held responsible for many high counts. Some milk cans, each time the milk is emptied from them, are thoroughly cleansed and sterilized before being sent back to the producer, but as a rule this is not true. Such a can usually has the following history: purchased new it is kept for a while on the car for family trade and is carefully attended to, but as age advances it gives way to brighter and better looking cans, and takes its place among the store cans. The farmer cleans it with hot water as best he can. He does not mind the dents in the side, for the dented can holds less milk. When the can is filled with warm milk, the bacteria lodged in inequalities, broken seams, etc., multiply rapidly, the spring water in which the can is usually set not cooling the milk sufficiently to prevent bacterial growth. After the early morning ride to the stations and a wait on the station platform, the milk is cooled in the car on its journey to the contractor, where it arrives say about 10 A.M. If still sweet, to the taster's tongue, the milk is poured into the mixer, and the empty uncleaned can filled with the mixed milk and stored in ice until early the following morning, when it is delivered to the storekeeper. He disposes of the milk during the day, returns the empty dirty can the following morning to the contractor, who, without cleaning, ships it to the farmer and the round begins again. To furnish clean milk, some contractors have two lines of cans — one for the farmer sent back the morning it is received and reaching him with what milk is left in it perfectly clean and sweet; the other set receiving the mixed milk and being sent to the customers. These cans are carefully cleansed and sterilized each time they return. The contractor finds but little sour milk when the cans are thus cared for, and the inspector finds but few bacteria.

The milk can stopper deserves a few words in passing; being generally of wood, it absorbs the milk sooner or later into its pores, becomes filled with bacteria, and if not properly cleansed with boiling water each time it is used, readily infects the fresh milk. Split one of these old stoppers and you will see how the milk has penetrated the pores of the wood. The wooden stopper fits the can tightly, and if properly cleansed has no superior while sound, but the places where it is properly cleansed are few. Metal stoppers of the same material as the cans are now used to some extent. This is a step in the right direction.

Some of the contractors seem anxious to do what they can to furnish a pure milk supply. Dairymen are learning the two C's — Cleanliness and Cold. The outlook is favorable. We expect the time will soon come when it will be difficult to find amongst Boston milk dealers milk containing more than 500,000 bacteria per cc.

ISOLATION METHODS AND PRECAUTIONS IN CONTAGIOUS DISEASE.*

BY F. P. DENNY, M.D., BROOKLINE, MASS.,
Assistant in Clinical Medicine, Harvard Medical School, Bacteriologist of the Brookline Board of Health.

TEXTBOOKS and the instruction received in the medical school seem to help us but little when we have our first practical experience in the isolation of a case of contagious disease. With varying degrees of knowledge of the principles involved, each physician works out for himself some of the details of isolation, and as a result our methods vary a great deal. Dr. A lays great stress on taking certain precautions which Dr. B, an equally good man, neglects; on the other hand, Dr. B carries out some measures which Dr. A considers unnecessary. The laity are quick to recognize these differences in our practice, as they are much more apparent than differences in therapeutic methods, and by this

* Read at a meeting of the Norfolk District Medical Society, Jan. 26, 1904.

lack of uniformity we often injure each other and the good name of the profession.

It has seemed, therefore, that it might be profitable for us to spend an evening discussing and comparing methods, suggesting to each other ways in which infection may be spread from a contagious case and the precautions that should be taken. What I have to say is in the nature of an introduction to such a discussion. It is hoped that it will serve to remind you of other and better methods which you yourselves are in the habit of employing and of which you will give us the benefit in the discussion to follow.

In considering what precautions to take in a contagious disease we must always keep in mind the nature of the infectious agent and the manner in which it is disseminated.

Diphtheria. — The Klebs-Lœffler bacilli are given off chiefly in the secretions of the nose and throat. These secretions are very profuse, as a rule, in the acute stage, and we often see patients with profuse discharges from the nose, and drooling from the mouth out over the pillow. They are apt to cough a good deal and in so doing spray the secretions to a considerable distance from them. The number of bacilli given off from some of these cases is very great, and the immediate surroundings of the patient must become very thoroughly infected. In a bit of diphtheritic membrane the bacilli may live a long time (several months), but when the bacilli are in a thin layer exposed to light and dryness they lose their virulence much sooner. According to good authorities, before the secretions can have become sufficiently dried and pulverized to float as dust in the air, the bacilli will probably have lost their virulence, so that there is comparatively little danger of the aerial transmission of the bacilli to other parts of the house. Our precautions, therefore, should be chiefly taken to guard against the infection being carried out by persons leaving the room or on objects taken out.

Scarlet Fever. — We know much less about the nature of the infectious agent in this disease. Dr. Mallory has recently found protozoan-like bodies in the skin of four cases, to which he has given the name *cyclaster scarletinalis*.[1] Whatever the relation of these bodies may prove to be, clinical observation has shown beyond much question that the infection is in the secretions from the nose, throat and ear, in the epidermis, and probably also in the urine and feces. The infection is more persistent than in diphtheria and seems to stick longer to rooms and objects; hence it is more important to limit the dissemination of the infectious material.

It is generally thought that scarlet fever is much more contagious than diphtheria on account of the scales of epidermis which are supposed to fly about through the air during convalescence. To how great an extent this takes place it is impossible to say, but the disease does not seem to be as contagious as it would be if this took place to any considerable extent. It was found on investigation that there was no increase in the number of cases of scarlet fever in the immediate vicinity of the South Department of the Boston City Hospital.[2] Personally I believe that the danger of the aerial transmission of scarlet fever has been overestimated.

Mixed infections. — Associated with the Klebs-Lœffler bacilli in diphtheria there is often also an infection with other bacteria, the most important of which are the streptococci; and in scarlet fever it is the rule to have a mixed infection with the streptococci. One object of isolation in these diseases may be to guard against the dissemination of these pyogenic bacteria, especially if there are surgical or puerperal cases about, and the personal precautions which the physician takes in visiting a contagious case should not only have as their object to guard against carrying away the specific organisms of the disease, but also to avoid transmitting the streptococci.

ISOLATION METHODS.

I shall consider isolation methods only in diphtheria and scarlet fever, the two diseases in which we most often wish to carry out strict isolation at home.

As soon as the diagnosis of these diseases is even suspected, certain precautions should be taken at once. The patient should be confined to one room, from which all susceptible persons are excluded, and all eating utensils, handkerchiefs, towels, etc., should be boiled after use. These precautions should be taken in every case of sore throat in a household where there are children.

When the diagnosis has been confirmed there are many things to be arranged for by the physician. There is the room to be selected and prepared, the nurse to be engaged, and if it is diphtheria, antitoxin must be given to the patient and to each member of the household. The domestic and social plans of the family have to be suddenly changed and there are innumerable questions arising which the physician is called upon to decide. The establishment of a proper quarantine in a private house is a very time-consuming affair, but it is time well spent; it saves a great deal of trouble and annoyance later, and makes the subsequent care of the case much more satisfactory.

The *selection*, *preparation* and *care* of the patient's room should next be considered, but as these important details are more often described in textbooks, I shall pass them over here and merely say that, in the selection of the room the most important factors to be considered are, remoteness, the presence of sunlight and the location of the bathroom. One cannot have a satisfactory strict quarantine unless there is a bathroom for the exclusive use of the nurse and patient. If possible there should be a room for the nurse adjoining the patient's room. The ideal conditions are to have the two bedrooms and bath all connecting, but a satisfactory ar-

[1] Journal Medical Research, January, 1904.

[2] Boston City Hospital, Medical and Surgical Reports, 1897, p. 7.

rangement also is to have the three rooms at one end of a hall. In the bathroom there should be a small gas stove or some other arrangement for heating a boiler in which articles may be sterilized.

It is a practice with many nurses to hang a sheet across the door of the patient's room, which may or may not be kept wet with a disinfectant. Personally I do not think this sheet accomplishes much, because, as already stated, there is probably slight danger of the aerial transmission of these two diseases. Currents of air which might blow infected particles of lint or epidemis along the floor will also blow up the sheet. If used at all the sheet should be long and weighted with a sandbag or something of the sort.

Dr. Harrington [3] has called attention to the strong currents of air which often blow under a closed door, and suggests that a sandbag should be placed along the sill to prevent this.

Across the hall, just outside the sheet (if one is used), or outside the door of the patient's room, there should be drawn a chalk line or an imaginary line to represent what may be called "the *neutral line*," which is never to be crossed by those in the household outside the quarantine and by the nurse only after she has taken special precautions. At this neutral line there should be a small table, preferably with a large tin waiter on it.

After quarantine is once established there must necessarily be an exchange of certain articles with the rest of the house, and whatever is to go out of the room must be put on the table in a sterile condition. In a short personal experience in being quarantined at home I found that the articles which have to go out of the room may be divided into four classes: (1) Soiled clothes for the laundry; (2) dishes, eating utensils, etc.; (3) food refuse; (4) combustible waste.

Soiled clothing for the laundry may be boiled and then the whole boiler is put on the table at the neutral point. When the water has cooled those outside take the clothing out, being careful not to touch the handles of the boiler by which the nurse had lifted it. Another method is to have the clothing done up in sheets wet in corrosive sublimate or carbolic acid, and then carried to the laundry where it is immediately put into boiling water. The immediate boiling of clothing has the disadvantage that it fixes stains in the clothes so that they will not wash out. This may be avoided by soaking them first for two hours in a cold solution of carbolic acid, 3 parts; soft soap, 2 parts; cold water, 100 parts.

Most of the *dishes and eating utensils* used by the patient should be kept in the room, but it is often desirable to send back some of the dishes, especially those on which the food is served. These should be boiled and then put on the table while in the boiler, just as described above for clothes.

All the really soft *food refuse* may be put into the watercloset, while the solid part may be done up in newspapers and disposed of with the combustible waste; or all the food refuse may be thrown into a covered receptacle containing chloride of lime, which is emptied daily.

The *combustible waste* consists chiefly of papers, rags, etc., which can be burned in the open fire if there is one, or it may be done up carefully in several layers of newspaper by the nurse who puts the package on top of another fresh paper which has been spread on the top of the table by some one outside of quarantine. The person outside then wraps up the bundle in the fresh newspaper without touching the nurse's package and the whole may then be taken down to the furnace or kitchen stove and burned.

Exercise for the nurse. — The nurse should have an opportunity to get out of doors every day. This is easily arranged if there are two of them, but with only one it is difficult, especially if the patient is a very small child. Sometimes if a member of the family will stay just outside the room the child will be satisfied and remain quiet for the hour that the nurse is away. Before going out the nurse should change her dress, wash and disinfect her hands, and put on overshoes while passing through the house.

PRECAUTIONS TO BE TAKEN BY THE PHYSICIAN IN VISITING A CASE OF CONTAGIOUS DISEASE.

There is some danger of the transmission of these diseases by a third person, but it is probably not very great. A great responsibility rests upon us, however, to take every reasonable precaution to reduce the danger to a minimum. For the sake of brevity I have written out some of the precautions in the form of rules. Most of them seem too simple and self-evident to mention here, but all of them are points which I have either found myself neglecting or seen others neglect.

(1) While making a visit do not sit down or lean up against anything. It should be possible to make a visit without coming in contact with anything except with the hands in examining the patient and with the soles of the shoes on the floor.

(2) After having touched the patient or objects in the room remember that anything that the hands touch will in turn be infected; for example, do not put the hands in the pocket to take out watch, pencil, or thermometer, and do not go to the bag to get out the stethoscope, corrosive tablets or drugs without first disinfecting the hands. In visiting any patient for the first time, where it is known that there is a rash or a sore throat, it is a good rule always to get out the corrosive tablets from the bag before going near the patient.

(3) In examining the throat stand so that it is possible to step to one side if the patient coughs or gags. In difficult cases this cannot be done.

(4) At the end of the visit disinfect the hands; do not first wash them in a small amount of water, as this may serve to wash some of the organisms from the smooth surface of the skin to the under surface of the nails, where the disinfectant will not readily reach them. It is better to first rinse

[3] BOSTON MED. AND SURG. JOURN., CXLI, No. 25, 1899, p. 617. For the subject of "Disinfection in the Sick Room" the reader is also referred to this article of Dr. Harrington's.

the hands in a stream of running water or immerse at once in the disinfectant.

(5) Do not use any towel which the nurse has handled or which might have become infected in any way. If there is no towel that can be trusted let the hands dry in the air.

(6) In going out do not touch any door handle which could have been infected.

Each one needs to watch himself carefully during a visit in order to avoid making mistakes; even then we shall make some; but if we are only conscious of our mistakes, if we know when we have come in contact with infected objects, or when the patient has coughed on us, then it is easy to guard against carrying the infection to others.

It is especially important that we physicians should set a good example in taking precautions; for if we are careless during the short period of our visits it cannot be expected that the nurse and others will keep up their precautions day in and day out during the long weeks of quarantine.

A cotton *gown* or long coat may be worn in visiting a contagious case and is often a great protection, especially where difficult throat examinations have to be made. Unless a gown is properly cared for it may be worse than useless. The ideal way is to have the gown sterilized each time after use, and when this is not done it should be hung carefully so that the inner surface cannot come in contact with the infected outer surface. I remember once visiting a contagious hospital in order to see the building and was given a gown to put on which was taken out of a wardrobe in which there were four or five other gowns all bunched up together. For the sake of politeness I put on the gown although I felt there was more danger of getting infected from the gown than from the air of the ward.

Disinfection of the physician's clothing, etc. — If we have reason to believe that our clothes have been infected we should do something more than give them a rest of twenty-four hours. They may be disinfected with formaldehyde gas in a small closet or cabinet, or they may be hung out in the sun and their position frequently changed so that all infected surfaces will be exposed to the direct rays of the sun. The direct sunlight has a very rapid action and is one of the most convenient and reliable disinfectants that we have. We are apt, however, to overestimate the efficiency of simple airing without the direct sunlight, and trust too much, for example, to a walk in the open air to get infection out of our clothing. If our clothes have been infected from organisms floating as dust in the air of the room,— a very remote possibility, I believe,— then currents of air are doubtless efficient to remove a large part of such infection. If, however, the clothing has been infected by minute particles of secretion sprayed out by the patient, or by contact with infected objects, then currents of air will have little effect.

We should be very careful not to get the inside of our gloves infected. The moisture of the hand and the absence of light furnish conditions favorable to the long life of pathogenic organisms.

It is sometimes desirable (and often a great satisfaction) to be able to disinfect with formaldehyde gas such small articles as gloves, stethescope, or the whole bag and its contents. The following device which I have found very convenient and efficient can be arranged by any physician in a few minutes. An ordinary tin cracker box of suitable size is raised up on four small bottles, or other objects, so that an alcohol lamp or gas flame can be put beneath. On the bottom of the box at one corner a formaldehyde pastile is put and close to it a piece of moist sponge or some wet cotton. The objects to be sterilized should be put into the box so that all infected surfaces are exposed to the gas and without touching the bottom of the box near the pastile. The box cover being closed and sealed with adhesive plaster, the lamp is lighted. The flame should be very small ($\frac{1}{2}$ to 1 inch), and should be directly beneath the pastile. After fifteen minutes the pastile will be volatilized and the lamp may be removed, but the box should stand sealed for at least two hours. The usual method of volatilizing the pastile with the lamp inside the box has the disadvantage that the lamp sometimes goes out on account of deficient oxygen and by that method also the air is drier. In this method the moist sponge or cotton being heated by the flame raises the humidity and so increases the disinfectant action of the formaldehyde. In some experiments made with this method test objects inside the fingertips of gloves were disinfected.

PRECAUTIONS TO GUARD AGAINST THE TRANSMISSION OF INFECTION BY MEANS OF FOOTWEAR.

The floor of a room occupied by a contagious case is almost certain to be infected, as particles of secretion coughed out by the patient have been found to settle on the floor, and scales of epidermis also find their way there. Wright and Emerson [4] found diphtheria bacilli on the shoes of three nurses in the diphtheria ward of the Boston City Hospital. It seems well to consider how great is the danger of contagion being spread by the feet of those leaving an infected room.

Mr. Nyhen and I have been making a few simple experiments along these lines. We have put cultures of *bacillus prodigiosus* on different parts of the soles of our shoes, and then by means of gelatin plates, made at varying intervals, we have determined how long the bacilli would remain on the shoes while we were attending to our regular business. The growth was put on moist and also in a dry powdered form. The results of these experiments which are reported elsewhere [5] may be very briefly summarized as follows:

In thirty-seven tests where the *soles* were inoculated and where plates were made after inter-

[4] Wright and Emerson. Centralblatt für Bakt. 1894, xvi, 412.
[5] Jour. Mass. Association of Boards of Health. Vol. xiv, No. 2, May, 1904.

vals varying from one to three hours, the bacilli were found in thirteen (35%).

In twenty-two tests with the bacilli on the under surfaces of the *heels* for a similar length of time, the plates were positive in twelve (55%).

In twenty-six tests where the *instep* was inoculated and plates were made after intervals varying from one hour to nine days the results were positive in fifteen (58%).

In fifteen tests with the bacilli on the lower edge of the *side of the sole*, eleven were positive after intervals varying from one to seventy-two hours (73%).

These experiments show that infectious material even when dry will cling to the sole of the shoe and so may be carried long distances. It will be carried longer if, as may sometimes happen, the side of the sole or instep is infected.

It seems probable that infectious organisms are disseminated to some extent by the feet of those leaving the immediate vicinity of a contagious case, although it is not likely that disease is often spread by this means, because there are comparatively few opportunities for the infection to get from surfaces to which it may be carried by the feet to the mucous membranes of susceptible persons. There must be some danger of a physician carrying contagion in this way if he goes directly to the nursery or rooms in another house where children play on the floor.

In any case where a very strict quarantine is considered necessary, precautions should be taken to guard against infection being carried to the rest of the house by the feet of those going out from the room. These precautions are not troublesome or time-consuming. The soles of the shoes may be wet with a disinfectant on leaving the room, or overshoes may be put on before entering and taken off and left at the neutral line on leaving.

A CASE OF SUSPECTED HOMICIDE PROVED TO BE SUICIDE BY STRYCHNIA.*

BY F. J. CANEDY, M.D., SHELBURNE FALLS, MASS.

Roland Dyer, the subject of this history, was the son of parents too shiftless to care for their own offspring, and at the age of twelve years he was bound out to a farmer in Ashfield to earn his board and clothes.

He first becomes of interest to a medico-legal society two years later, on the afternoon of Sept. 23, in a little country schoolhouse on the outskirts of the town of Ashfield, where he is kept after school and reprimanded by his teacher for conduct unbecoming a gentleman toward a girl schoolmate. He then starts for home, some distance away, in company with another boy, whom he tells while on the road that if his father (meaning Mr. Wiley, in whose family he lives) knows of this affair, he will kill him, and that he is going to commit suicide by taking strychnine. He said that he had tried it once, but had taken too much, so that it made him sick and he threw it up.

Our next knowledge of him is from Mrs. Wiley, who says that he came in from school about five o'clock, changed his school clothes for overalls and went out to rake up rowen near the barn, Mr. Wiley being at work in the same field, some distance away, on the other side of the barn, but in sight of the boy. Mr. Wiley says that soon after the boy went to work, and before he had raked up a small cock of rowen, his twelve-year-old daughter, who had been in school that day, but not the girl connected with the punishment the boy had received from his teacher, came out and told him what had happened at school, upon which he started to go down to speak to the boy. In doing this he passed on the other side of the barn, so that for a very short time (he thinks less than a minute) the barn was between them, and when he came out on the other side the boy had disappeared, and the next time he saw him his body was found lying in the woods three fourths of a mile away, a month later.

About two hours later, between seven and eight o'clock in the evening, Mr. Wiley appears at the office of Dr. Fessenden of Ashfield, associate medical examiner in my district, some four and a half miles from the Wiley farm, and tells his story in rather an excited manner. He brings with him a pewter mug having some traces of a white powder in the bottom, which he states he found under a lounge in his kitchen, and a small cork which he found lying on the kitchen floor, and he says that a small vial of strychnine which he obtained from a drug store in the spring to kill crows in the cornfield had disappeared from a shelf in the cellar way where it was kept. He further states that upon the boy's disappearance they instituted search for him, blew their dinner horn and called their neighbors to aid them, but without finding trace of him.

This Mr. Wiley was a man who had suffered some years before from some mental aberration of a melancholic type; was unpopular among his neighbors; said to have a violent temper, which often manifested itself in brutal treatment of his animals; and this boy had on several occasions received very severe punishments at his hands, although no one denied that he had been generally kindly treated in this family, and that it was only in these uncontrollable outbursts of Mr. Wiley's temper that he was liable to suffer injury. Mr. Wiley's neighbors and many of his townspeople refused to credit his version of the boy's disappearance, and openly expressed the opinion that he had killed him and secreted the body.

The state police were early called into the case, — two of them responding, — and with two deputy sheriffs a thorough search was at once instituted for the lad, chiefly under the supposition that he had been killed and his body secreted somewhere about the Wiley premises. Two or three unused wells were opened up and explored; the cellar floors of the house and barn, and wher-

* Read at the annual meeting of the Massachusetts Medico-Legal Society, June 7, 1904.

ever there was any indication of recent disturbance of the ground about the locality carefully gone over, — several men spending three days in this work almost without intermission. Meanwhile the officers spent most of their time in questioning members of the Wiley family and others, hoping to get more clews to direct them in their investigation. But nothing was discovered, and after a few days the officers left town, though some of the neighbors still kept up a desultory search of outlying premises, and even sat up nights to watch for any appearance of a lantern, thinking this might lead to some discovery. Nothing having been found in the immediate locality, searching parties on several later occasions explored the neighboring fields and woods for some distance about, and it was on a Sunday afternoon, Oct. 19, twenty-six days after the disappearance, in an organized search by a large number of men, conducted by a deputy sheriff, that the body was found. It was about three fourths of a mile from the Wiley homestead, in a small collection of low growth hemlock, something like a third of a mile into woods of first growth timber, and just off from and in plain view of a wood road leading through.

My associate examiner, Dr. Fessenden of Ashfield, was notified, and at once went to the place and took charge of the body, and it is to his painstaking notes that I am indebted for the position of the body as found here, and his relation of circumstances from which the receding narrative is drawn.

The body clothed in blue overalls and calico shirt, with a weather-stained straw hat on the head, was lying front downwards on the leaves; toes resting on the ground; heels pointing up; right hand under the stomach; the left hand back downwards under the left side of the face, which was turned to one side, the attitude being as though the person had carelessly thrown himself down to rest. There were very few leaves or woods material on the surface of the body, and no apparent disturbance of the forest mold or objects about, but when the body was lifted it was found to have indented itself into the leafy mold beneath, which was very moist and offensive and covered with maggots. All the soft parts, except those covered with clothing, were thickly coated with large, white maggots, which had eaten the flesh to the skeleton. In the skeleton of the right hand was a half-ounce vial, half full of maggots and with a badly defaced strychnia poison label. The muscles of the trunk and thighs were so rigid that the body was lifted by the shoulders and knees without bending, and placed upon a rubber blanket, upon which it was then conveyed to the receiving vault in the Ashfield cemetery.

My first personal knowledge of this case was on the following day, Oct. 20, when I went to Ashfield by order of District Attorney Malone to make an autopsy on the body, in which I was assisted by Dr. Fessenden. I found the body lying on a table in the open field outside the cemetery vault, dressed in blue overalls and colored shirt, with straw hat lying by its side. It was literally covered with maggots and giving off a most horrid odor. Mr. Wiley, with whom the boy had lived, was present, and identified it as the body of the missing boy, chiefly by the clothing. This identification was confirmed by Dr. Fessenden and others present.

The body measured five feet three inches in length, and the head, face and neck presented nothing but the bare skeleton for inspection — the only exception to this statement being the crown of the head, which had probably been protected from the maggots by the hat which was found on his head where the scalp with its hair had dried down upon the cranium. Maggots had also eaten all the soft parts from hands and feet up to the point where the limbs were covered by clothes. On removal of clothing, the skin was found intact beneath, mostly dark red on the extremities and green over the abdomen, with marked rigidity of underlying muscles in the arms, but less in the thighs. The work of the maggots had extended below the clavicles on the front of the chest, and opened into the thorax, where the lungs were entirely decomposed and the heart partially so. These scavengers had not yet invaded the abdominal cavity, where the peritoneal covering of the stomach and intestines was quite glistening and firm. The stomach, about half full of what appeared to be liquid substance, was tied off at both ends, and placed in a glass jar, which was sealed up. Stomach and intestines not much decomposed, with normal vermiform appendix; liver and kidneys somewhat softened; gall bladder contained a small quantity of bile; urinary bladder empty. One kidney, with portion of liver and gall bladder, was placed in second jar and sealed.

The brain was entirely decomposed. The skull and bones of the face showed no marks of injury and the uncovered cervical vertebræ were intact, but about ready to separate, from the work of maggots and decomposition of attachments, upper and lower sets of teeth complete.

The jars with their contents were carefully packed and sent by express to Dr. William B. Hills, professor of chemistry at the Harvard Medical School, for examination. In separate parcels were also sent the pewter cup, brought to Dr. Fessenden on the night of the boy's disappearance, and the vial found with the body. Ten days later the following report was received from Dr. Hills: —

"I have made a qualitative analysis of the organs of Roland Dyer received from you Oct. 24 inst., and herewith report the presence in the stomach and in the liver of the alkaloid strychnine.

"The white powder adhering to the interior of the pewter cup from the house of Alec Wiley is a salt of strychnine.

"The bottle found near the hand of Roland Dyer contained a very small quantity of strychnine, not sufficient to be visible to the eye, but sufficient to be easily recognized by chemical tests."

This report was placed in the hands of the district attorney, who took no further action in the matter, and the case was dropped here, much to the disappointment of some who had previously been active in the matter and still refused to be convinced that the boy had died by his own hand. They made it so unpleasant for Mr. Wiley that a little later he disposed of his place and left town, which to their mind was further evidence of his guilt.

Clinical Department.

REPORT OF CASES FROM THE SURGICAL SERVICE OF THE CHILDREN'S HOSPITAL, BOSTON, MASS.

SECOND SERIES.

BY DRS. H. D. BURRELL, H. W CUSHING AND J. S. STONE. REPORTED BY DR. J. S. STONE.

(Concluded from No. 25, p. 687.)

CICATRICIAL CONTRACTION OF THE RIGHT FOREARM AND HAND, WITH EXTENSIVE LOSS OF TISSUE. CORRECTION OF DEFORMITY. TRANSPLANTATION OF ABDOMINAL FLAP.

C. W., a boy of eight years, of Antrim, N. H., was admitted to the General Surgical Service of the Children's Hospital on April 6, 1903, for correction of cicatricial deformity of the right forearm and hand.

A year and ten months before the right arm had been caught in belting. The thumb had been very badly injured and there had been extensive destruction of tissues on the anterior radial surface of the forearm. At the same time there had been a greenstick fracture of both bones of the forearm. The boy had been treated for a time at the hospital in Hanover, N. H. The thumb had been injured so extensively that it sloughed off entirely. Cicatricial contraction followed.

The deformity existing at entrance is shown in the first picture. The right wrist was held flexed about 110°. The hand was also drawn strongly to the radial side, so that there was great prominence of the styloid process of the ulna. A firm scar extended from the junction of the upper and middle thirds of the forearm on the anterior radial surface down to the wrist. The thumb and thenar eminence were entirely gone. There was sharp flexion of the fore and middle fingers though they could still be moved a little voluntarily. These two fingers, particularly the forefinger, were atrophied as a result of disuse.

On April 11, the boy was etherized and the firm, thick part of the cicatrix was excised. At the edges in places the thinner flexible scar tissue was left untouched. The size of the denuded area is shown well in the second photograph. The scar tissue was excised down to the tendon sheaths and the wrist and fingers were then forcibly extended. The anterior ligaments of the wrist were torn somewhat and in one spot a tendon sheath was torn open slightly. The tendon of the flexor sublimis of the middle finger seemed to offer more resistance than any other structure. All the tight bands of facia were cut across in the forearm and in three places an oblique myotomy of the tight flexor muscles was done. The denuded area was dressed with tin foil and the arm put on a metal splint with the wrist extended 30°. The fore and middle fingers could not be quite fully extended because of the circulation. Very little pain followed the operation.

Six days later the dressing was removed and a healthy granulating surface was exposed. Blood clots were carefully removed so as not to start fresh bleeding and the whole area was washed with salt solution. A flap of skin and subcutaneous tissue, an inch and a half by six inches, was then dissected from the abdominal wall,

Cicatricial contracture of right forearm before operation.

being left attached by its upper and inner long side. The flap reached from the median line just above the umbilicus, upward and outward, on to the three lower ribs. The ends and the long free border of the abdominal flap were then carefully stitched with continuous catgut to the ends and the radial border of the denuded area of the forearm. The forearm was then fully supinated in order to bring the raw surfaces of the flap and forearm together; and partly in order to maintain this apposition and partly to narrow the denuded area on the abdomen two quilted sutures of catgut were passed through the bottom of the fold in the flap close to its attachment to the abdomen, downward behind the forearm and though the skin beneath the exposed area from which the flap had been taken. The corners of the abdominal wound were sewed together to narrow the raw surface which was left. This surface and the lines of suture were covered with tin foil and a large sterile gauze dressing. A plaster bandage fixed the hand in corrected position and prevented movement on the abdomen.

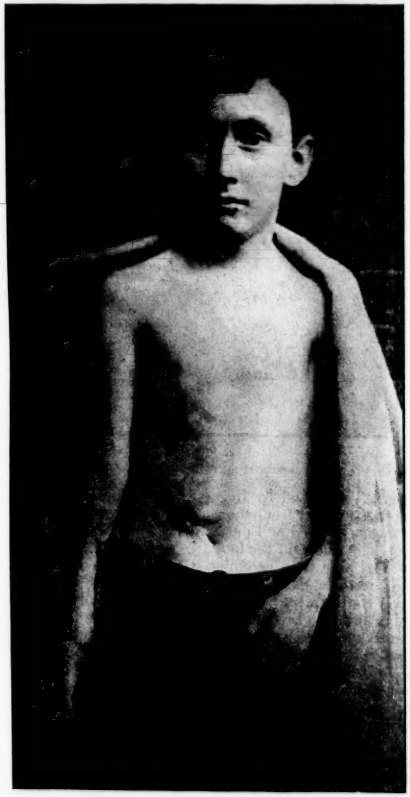
Two weeks later a window was cut in the plaster through which the dressing was changed several times as the odor of the discharge from the wound became offensive.

Twenty-three days after the abdominal flap had been sewed in position the plaster was removed and the flap cut free from its abdominal attachment. The circulation in the severed flap remained good enough to cause a very slight amount of bleeding. The discharge from the raw surfaces was carefully washed away with salt

solution and the edge of the flap stitched with interrupted catgut to the ulnar side of the raw area of the forearm. The contracted fingers were again forcibly over-corrected and put in a splint. The edges of the abdominal wound were drawn toward each other with adhesive strips.

Eleven days later, May 22, three Thiersch grafts from the thigh were placed on the abdominal wound. The forearm had healed entirely.

On June 4, fifty-four days after the first operation, the boy was discharged well except for a few small granulating areas between the grafts on the abdominal wall. The splint was omitted. There was no tendency



Cicatricial contracture of right forearm after operation.

to recurrence of the contraction, either in the wrist or fingers. The slight bowing of the bones of the forearm, the result of the fracture, remained. The subluxation of the hand toward the radial side was much diminished though not entirely corrected. The fingers were very stiff, though voluntary motion was possible, more free in the little and ring fingers than in the other two. The atrophy of the forefinger was unchanged and can be seen in the photograph. The transplanted flap was of normal color, soft and freely movable. The photograph shows well the condition at discharge, except that the slight subluxation of the hand to the radial side does not appear.

On Nov. 28 the boy was re-admitted because of some recontraction of the deeper tissues. The transplanted skin remained soft and pliable. Under ether the tissues were forcibly stretched and a celluloid splint was made for use at night to prevent any further contraction.

ADENO-SARCOMA OF THE FEMORAL AND INGUINAL LYMPHATIC GLANDS. EXCISION. METASTASES. DEATH.

W. McG., a boy aged three years, of Hyde Park, was sent to the Out-Patient Department of the Children's Hospital on July 15, 1903, by Dr. Philip C. Means.

The family history was good except that one sister had "spinal trouble."

The child had always been well until two weeks before when lameness of the left leg had been noticed. This had come on without known cause. There were frequent night cries. There was pain in the left heel, ankle and thigh. The circumference of the right thigh was increased a quarter of an inch. There was no difference in the length of the legs. There was a slight limp in walking. Abduction and hyperextension of the thigh were limited. The child was put to bed for a few days and the pain ceased.

On Aug. 10, six weeks after the lameness was first noticed, the child reported again. The pain had come back again, and the night cries had recurred. The motions of the left hip were limited in hyper-extension and abduction, but were free in flexion and adduction and rotation. A mass could be felt in the left groin and iliac fossa. It was somewhat nodular, not tender, not fluctuating. It lay chiefly above the middle of Poupart's ligament, but some fullness could be felt in the upper part of Scarpa's triangle. Rectal examination showed the mass to be movable and much more nodular than appeared on external examination, and about the main mass distinct glands could be plainly felt. The mass lay to the left of the rectum close upon the ilio-psoas muscle, reaching upward from Poupart's ligament for about two inches and having about the same breadth. The spine was rigid but there was no knuckle. The reflexes were normal. The heart and lungs were normal. The rest of the abdomen was normal. The child had begun to lose flesh though still fairly nourished. The pallor was very noticeable. The urine was of normal color, acid in reaction, with sp. gr. of 1,035, and free from sugar and albumin. The urates were increased. The hemoglobin was 70%. The white count was 12,200. A stained specimen showed some achromia; no poikylocytosis; basophiles 50%, large 23%, small 27%; neutrophiles 50%, one eosinophile. The temperature ranged between 100 and 101. The pulse was 120, the respiration 30.

The child was admitted to the hospital and was kept under observation for a few days. The tumor increased a little in size.

On Aug. 18, seven weeks after the onset of the first symptoms, the child was etherized and the glands excised. The incision was made parallel with Poupart's ligament, about three inches long with the inner edge just above and outside of the external inguinal ring. The peritoneum was exposed and dissected back. The whole operation was performed extra-peritoneally. The glands were discrete, not adherent and varied in size up to a long diameter of 3 cm. Many were very soft and friable and were torn in being dissected out. The glands followed the course of the external and common iliac vessels. A number were dissected out from deep in the pelvis outside of the internal iliac vessels. A flap of skin was turned back and a large number of glands were dissected out from Scarpa's triangle.

An unbroken chain led directly under Poupart's ligament close to the femoral vein. These also were excised. All the glands which could be seen were excised and the wound was partially closed with silkworm gut sutures. The hemorrhage was moderate. On account of the oozing gauze wicks were put into the wound. The shock was marked. The condition after the operation was finished was poor.

Six days after the operation 1 minim of Coley's mixed toxins of streptococcus and bacillus prodigiosus, prepared by Parke, Davis & Co., was injected. No reaction whatever followed. On the seventh day, 2 minims, on the eighth, 3; on the ninth, 5; on the eleventh, 6; on the fifteenth, 10; on the seventeenth, 12; on the nineteenth, 14; and on the twenty-first day, 16 minims of the toxins were injected. No reaction whatever followed any of these injections. On the ninth day the temperature had reached 102.2°, but came down on the thirteenth day to 99° and 100°, finally going up to 101°.

During the first week after the operation the general condition seemed to improve a little. Then the child began to grow very dull and apathetic. The appetite failed. The cachexia became more and more marked. Marked edema of the face, particularly about the eyes, came on. Slight exophthalmos followed. The wound healed solidly within two weeks without local recurrence. No recurrence elsewhere could be definitely made out, though obviously the disease was steadily progressing. As the toxins seemed to be doing no good and as the parents wished to take the child home he was discharged on Sept. 13, not quite four weeks after the operation. The after history is contained in the following letter from Dr. Means:

"The child died Oct. 25. Glands in the bowels and neck, bulging below both temples, blindness the last week, cough and foul breath, and unconsciousness for the last thirty-six hours. There seemed to be no pain till the last two weeks and then not severe."

It seems probable that the first recurrence was cerebral. This might account for the profound apathy, the exophthalmos, the constantly increasing cachexia, without any discoverable local recurrence. The report of the pathologist showed the tumor to be adeno-sarcoma.

The case is of interest as showing the rapid course of the disease, the absence of local recurrence and the absence of any reaction to very large doses of the toxins of streptococcus and bacillus prodigiosus.

URETHRAL FISTULA; THE RESULT OF A HAIR TIED ABOUT THE PENIS.

D. F., a boy aged three and a half years, of Chelsea was admitted to the Children's Hospital on Aug. 26, 1903. He was a Jew on whom ritual circumcision had been performed.

The only history of importance was that given by the mother in a rather unreliable and varied story. About ten months before she noticed a constriction about the penis which after a time caused retention of urine and considerable swelling below the constriction.

The person who had performed the circumcision was called in and found a hair which, it was later learned, the boy had voluntarily wound around the penis. After the hair was removed it was found to have cut its way into the urethra. The fistula closed a little at first, but for months before the boy was admitted it had remained in the same condition. Urine passed through both fistula and meatus.

On the under surface of the penis, about 5 cm. behind the frenum, was a fistula about 2 cm. in diameter, leading directly into the urethra. The edges of the fistula were thin, red, made up of unhealthy skin. Otherwise the child was well.

Under ether the edges of the fistula were dissected away down to healthy tissue and the adjacent skin was dissected away. As little tissue was sacrificed as was possible. A pursestring suture was tied around the fistula, drawing the mucous membrane firmly together and yet in no place perforating it. Outside of this the skin was drawn together by another stitch of fine catgut.

There was no leakage after the operation. Nine days later the child was discharged with the wound closed solidly.

The method of closing the fistula without elaborate plastic operation is of interest.

POST-OPERATIVE ERYSIPELATOUS DERMATITIS IN AN INFANT OF ONE MONTH; RECOVERY.

BY W. P. COUES, M.D., AND W. H. ROBEY, JR., M.D., BOSTON.

AN Italian infant of one month was admitted to the Surgical Department of the Boston Dispensary on April 25, 1902. A tumor of the shoulder had existed since birth and the child was emaciated from a diarrhea of nearly the same duration.

Examination showed a well developed male child. On the anterior aspect of the right shoulder was a lobulated, movable tumor, the size of a walnut. The tumor did not fluctuate; its surface was slightly reddened. The tumor was removed on April 28 under ether. There was very little bleeding, the incision was closed with interrupted silk sutures and a sterile gauze dressing applied. The following day the wound was slightly reddened, so the next day the sutures were removed and the lower angle of the wound drained. The pathologist reported the tumor to be a lipoma.

On May 14 the wound was entirely healed save for a small granulating surface at the lower angle, but a well-marked blush was noticed on the right arm and forearm. There were no blebs nor induration noticed. The inflammation seemed very superficial and the inflamed skin was not glazed.

The next day, May 15, the redness had almost disappeared from the right arm and shoulder but a blush had appeared on the left arm and shoulder. The baby's temperature was 106° F. and he looked very sick. Dr. C. Morton Smith pronounced the skin lesion to be a toxic erysipelatous dermatitis, probably resulting from the wound in the right shoulder.

On the 19th the child had profuse diarrhea and was very sick; the blush had gone completely from the upper part of the body but covered the right thigh and part of the right leg. On the 20th the scrotum became edematous with the signs of the erysipelatous inflammation. The child had a septic finger which was opened. The swelling of the scrotum increased, the penis was ecchymosed and swollen with phimosis. Temperature, 101°.

There is a red line extending down the legs, sharply demarkated at the lower borders of the tibiæ.

On May 22 an area of gangrene had developed almost covering the scrotum and one half of the penis; there was paraphimosis. White count, 22,000.

June 3 the gangrenous area has not extended, the slough is rapidly disappearing from the scrotum and penis, and healthy granulations are forming. The child's general condition is steadily improving.

Cultures were made under the best conditions, at the time the various abscesses were opened, and the

cultures examined by us and the pathologist. The organism found in every case was the Staphylococcus albus. The infection, however, was undoubtedly due to the streptococcus.

It was formerly supposed that such lesions were due to a staphylococcus, but Sabouraud[1] has pointed out that the reason why we do not get the streptococcus is because our method is at fault — the common pus cocci crowd out the feebler and slower growth of the streptococcus. In a similar case which we have just seen in an infant at the Boston City Hospital the pathologist failed to grow the streptococcus. Sabouraud has succeeded in isolating the streptococcus in similar cases, and although we failed, the clinical course of our cases was interesting because of the power of such small infants to withstand a tremendous injection.

Allen[2] in the *Medical Record* reports 100 cases of erysipelas, 50% of which were traceable to pre-existing skin lesions. Chantemesse[3] says that the examination of the blood during and after the period of convalescence furnishes valuable information. He says that the leucocytic curve follows the temperature very closely. The polymorphonuclear leucocytes show an increase as soon as the malady is established when at the same time the mononuclear forms diminish. When recovery takes place it is signalized by a fall in the polynuclear elements. The eosinophiles which fall during the illness only appear again when the blood infection is entirely at an end. Douchez[4] considers such an erysipelas in the newborn as very unfavorable; serumtherapy may be of great value. Rosenberg has had under similar conditions great results from the use of ichthyol ointment. In our case the general condition was supported and the abscesses opened as soon as they appeared, and treated with a moist gauze dressing. The gangrenous areas were treated with dermatol and dry sterilized gauze.

Recent Literature.

The Clinica' Study of Blood Pressure. A Guide to the Use of the Sphygmomanometer in Medical, Surgical and Obstetrical Practice. By THEODORE C. JANEWAY, M.D., Lecturer on Medical Diagnosis, University and Bellevue Hospital Medical College, and Visiting Physician to City Hospital, New York City. 300 pages, with 75 illustrations. New York and London: D. Appleton & Co.

No one can fail to recognize, after reading this book, that the winnowing process between wheat and chaff must continue a good while longer before the ultimate separation is concluded. There is no lack of experimental data; but in evolving it, such a variety of methods and instruments have been used that qualifying the results has been difficult, even in the hands of an expert. A universal instrument has yet to be devised, and although the Riva-Rocci type is in the ascendant, certain details like width of armlet, physical characteristics of the subject's arm, influence of posture, meals, psychical states, muscular exertion, etc., still stand in the way of uniform results. In drawing conclusions the author has checked the work of others, as far as he could, by results of his own investigations, and he aims to give an intelligent digest of all important work so far reported, with a list also of the original sources.

The book opens with a clear description of the various phenomena connected with blood pressure, followed by a critical account of the various instruments in common use. In the next chapters follows the discussion of pressure in health and disease with numerous general laws put into concise form. Careful consideration is given to the phenomena of collapse and shock and, for the most part, the well-known theories of Crile are accepted. The paragraphs devoted to arterio-sclerosis and the angio-sclerosis of v. Basch are very suggestive, and the problems of intracerebral pressure with the relative indications in hemorrhage and thrombosis are bravely attacked. Appropriate stress is laid upon the uselessness and possible danger of stimulating the heart when treatment should be directed to the vaso-motor system, and the means of such treatment are indicated. The weak part of the book is, of necessity, the effort to give information of value in regard to the individual diseases. In typhoid fever, by exception, there seems reason to look for help in the ever-difficult diagnosis of perforation. Since typhoid is almost invariably hypotensive and perforation and peritonitis apparently always attended by prompt rise, the indication for operative interference may come at a moment early enough to increase the chance of success, at best a slender one. To a number of other diseases considerable attention is given, but the reader looks instinctively to the future editions for more exact information. There are numerous illustrations and charts, and the letter-press is good, but more compactness in the arrangement of material would be an advantage.

Outlines of Physiological Chemistry. By S. P. BEEBE, Ph.D., Physiological Chemist to the Huntington Fund for Cancer Research, and B. H. BUXTON, M.D., Professor of Experimental Pathology, Cornell Medical College. New York and London: The Macmillan Co. 1904.

This small book consisting of about 200 pages is one which deals only with the theoretical side of physiological chemistry. It is not intended as a laboratory guide so that the various tests have not been described in detail. The object of the book is to explain the chemical reactions which take place when the tests are applied. The work would, therefore, appeal only to those who have a good understanding of physiological chemistry.

[1] Sabouraud: Annales de Dermatologie et de Syphilographie, 4 ser. vol. 1.
[2] Allen, C. W.: Medical Record, Nov. 23, 1895.
[3] Chantemesse: Lancet, Mar. 11, 1899.
[4] Douchez: La France, Nov. 12, 1897.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, DECEMBER 29, 1904.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; $6.50 per year for all foreign countries belonging to the Postal Union.*

All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal 707 Paddock Building, 101 Tremont Street, Boston.

All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal, should be addressed to the undersigned.

Remittance should be made by money order, draft or registered letter, payable to

THE OLD CORNER BOOK STORE (Incorporated),
27 AND 29 BROMFIELD STREET, BOSTON, MASS.

THE YEAR IN RETROSPECT.

THE past year has not been particularly remarkable in medical achievement or discovery, in contrast to several which have preceded it. It has given birth to no new theories of importance, and its significance lies rather in the application of knowledge gained and in the testing of hypotheses already advanced, than in the development of new and fruitful theories. A tendency which has been gaining ground for many years found definite expression this year in the Congress of Arts and Sciences held at St. Louis. We refer to the recognition of medicine as one of the sciences to be classified in the general field of knowledge This increasingly closer relationship of medicine, both in its theoretical and practical aspects, with allied but hitherto distinct branches of science is a significant fact which the meeting at St. Louis did much to foster. The addresses in general, and medicine was not an exception, were designed to bring out the broader bearings of the subjects discussed, and to lay stress particularly upon relationships between the apparently increasingly diverse branches of knowledge. In this the meeting was an undoubted success, and so far as medicine is concerned, it has served its purpose well, of bringing into its proper and dignified place a profession which has at times been regarded as without the pale of the sciences.

Another manifestation of the same tendency has been shown in the somewhat rapid elevation of the standard of entrance to our best medical schools with a remarkable increase of facilities for teaching, combined with a somewhat surprising falling off in the number of students at certain of our institutions. The University of Pennsylvania has opened very extensive laboratories during the year, the Rockefeller Institute is rapidly perfecting its plans for work, the new Harvard Medical School is approaching completion, and in fact everywhere the new spirit of the higher medical education is in evidence. This last year has, however, shown that the student body is not increasing proportionately. It is our intention here merely to call attention to this fact. It may be only a temporary phase, or, as seems more probable, it may have a far-reaching significance. In any case, the matter is worthy of careful investigation.

The combat against tuberculosis in this country has assumed during the year a more definite form than ever before in the organization of a representative national society, which absolutely insures an exercise of the judgment and wisdom necessary in this problem at the present time. The formation of smaller local societies during the year has helped the cause. Such a society, for example, recently organized in Boston, has been carrying on its work with success. Public demonstrations of various matters relating to the disease have been given in Baltimore and Boston, as a further means of educating the public.

Another subject of less popular but much medical interest is the light which the work of the past year has thrown upon the so-called rheumatoid diseases. However vague the matter may still be, the classification of these affections has now been seriously attempted, and unquestionably the work which is being done both on the clinical and pathological sides of the subject will soon bring this obscure type of disease into a much more definite place than it has hitherto occupied. We have heard somewhat less of the theories of immunity than before, but this is no doubt due to the fact that the various hypotheses which have been propounded are undergoing verification. Small progress has been made in the solution of the etiology of cancer.

Perhaps the most noteworthy work in surgery has been the development of stomach surgery .The possibility of operating on the stomach for benign disease has opened a new field, which has been much discussed during the past year. Whatever the limitations of this department of surgery may prove to be in the future, it is evident that the stomach may be operated upon with comparative impunity, and that hereafter medicine and surgery must share with what grace they can the treatment of its diseases. In the general domain of surgery the lessons of the Japanese-Russian war are significant. It is apparent that the Japanese have brought the care of the

wounded to a high degree of perfection, that they have introduced new and useful methods of surgical procedure, and that their general management of the surgical and medical problems of a great army may well be regarded as one of the most significant medical events of the past year.

The medical profession has been fortunate in not losing many distinguished men by death during the past year. The unexpected death of Weigert, while still at the height of his powers, and Finsen's untimely, though long-expected, death removed two men who had already accomplished much, but nevertheless had they lived gave promise of much more work to come.

An event of much interest to Americans and to Englishmen was the decision of Dr. Wm. Osler to accept the Regius professorship of medicine at Oxford. He had been so long identified with this country and had so thoroughly adopted it that natural as his determination may have been, it came as a surprise to his colleagues and to the public.

In general the year has helped to define the lines of future work and has brought to the test of experience certain important medical and surgical problems. It will be remembered rather as a year of accomplishment than of discovery.

THE QUESTION OF OBSERVATION WARDS.

THE question of observation wards or hospitals for patients suspected of mental disturbance will no doubt be discussed until some satisfactory solution of the matter is reached. Dr. L. Pierce Clark among others has been vigorously agitating the question in New York, and recently Dr. E. Stanley Abbot of Boston has published a paper of importance on the same topic. Not long since at a society meeting in Boston the matter was again discussed from various points of view, bringing out considerable diversity of opinion but in general recognizing the need. It may with justice be said that, whatever diversity of opinion there may be as to ways and means the necessity is apparent that we should have some means of observing cases on the border line between sanity and insanity before they are finally committed to established institutions. Those who have had experience with this important type of medical work, and particularly those physicians who have dealt with the problems which a great city presents in relation to its border line cases, will at once recognize the advisability of some sort of provision for the class of cases under consideration. Admitting, then, the necessity, the practical question of method at once presents itself and here naturally the chief difficulty lies. Shall the general hospitals set aside a ward or a pavilion for the care of the mentally unstable pending their future disposal? Shall an entirely separate hospital be established, distinct both from the general hospital and from insane hospitals, for the same purpose, or shall the existing insane hospitals so far extend their functions as to include the observation of these cases before their actual commitment?

In the first place, it has been proved possible to establish and conduct a ward of this character in connection with a general hospital by the experience of the so-called pavilion F at the Albany Hospital, to which we have in the past alluded. In general, this adjunct to the hospital has proved eminently satisfactory, and has, we believe, in no way been detrimental to the conduct of the general hospital. In Germany elaborate provisions for those suspected of mental disorder have been made, both in connection with general hospitals and separately. In discussing this question recently Dr. Clark suggested that the natural evolution of this new phase of hospital development is primarily to treat such suspected patients in the wards or in a ward of a general hospital, gradually isolating them as prejudice wears away to a greater and greater degree until finally a separate hospital may be established in conjunction with or ultimately independent of the parent institution. It is clear that a great part of the difficulty as now experienced lies in the prejudice attaching to this class of patients, a prejudice which we are convinced is imaginary rather than real. As a matter of fact many patients mentally disturbed are continually being treated in the wards of our general hospitals under different designations, and we can see no reason why one or several beds might not with propriety be occupied by patients whose disease is primarily mental. Could this be done and could such patients be regarded as in the same category with other occupants of the hospital, we are convinced that further steps would follow naturally. The first requisite clearly is to allay the popular impression, shared, we regret to say, by physicians, that patients with predominent mental disorder are in a category by themselves. With this false idea allayed, the desired reformation would not be long in coming. It has been argued that the admission of patients with mental disorder into a general hospital would introduce in the alcoholics, an undesirable class.

We fail to see wherein such reasoning has weight. Discrimination would naturally be used in the admission of these patients as in the admission of all others, which, if rigidly carried out, would certainly exclude that class of patients which are rightly dreaded by hospital authorities. There remain many others whom we are convinced would be much benefited by admission to the wards of a general hospital while awaiting decision as to the final outcome of their disease.

The policy of allaying prejudice through the introduction of such patients into a general hospital appears at present preferable to the establishment of separate hospitals for the observation of these cases. Could the former be accomplished the final separation would, no doubt, follow, as its necessity was more and more fully demonstrated. That the existing insane hospitals can at present fulfil the function also of observation wards in the sense intended seems for the time being impossible. In the first place their usual location, as Dr. Abbot has suggested, does not lend itself to the plan, and the prejudice against such hospitals, which, however much we may deplore, still exists, would not tend to be lessened by such a system. It is evident that what we now need is some simple plan whereby the individual bordering on mental alienation may be observed merely as a sick man by persons skilled in the recognition of such diseases. It is clear that such observation could be had at a general hospital.

Our intention at the present time is not to offer or even suggest a definite plan, but rather again to draw attention to the need which exists and which grows greater each year. Physicians in whatsoever line of work engaged should give their attention to this problem as they do to the problem of tuberculosis or to the many others which affect the municipality and not the individual alone. The recognition of the need, on the part of a large proportion of the medical public would unquestionably lead to the initiative which is necessary for the accomplishment of a definite result. The time is ripe for a wide discussion of the entire subject.

THE FINANCIAL PROBLEM OF THE NEW YORK HOSPITALS.

MR. FRANK TUCKER, vice-president of the Provident Loan Society, who a year ago investigated for *Charities*, the organ of the Charity Organization Society, the financial problems of the New York hospitals, has brought his investigations up to the present time, and finds that the condition has not improved. Last year the twenty private hospitals of the city were running with an aggregate annual deficit of nearly $500,000, and he states that the lean year just experienced by all these institutions is reflected in the recently published annual report of the Presbyterian Hospital, which shows a deficit of more than $70,000. The following extract from this report is quoted: "Unless the public conscience is quickened, and larger means for current expenses are provided, the hospital system of New York must at some date not long distant be changed. It means that, except for such provision, public hospitals under municipal management, supported by taxation, must in great part take the place of our present hospitals, which are private only in the sense that they were founded and have been supported by private benevolence and are under the direction of managers recruited by natural selection from our best citizens, and not subject, as is too often the case with municipal hospitals, to political change or popular caprice." Commenting on this statement, Mr. Tucker says that no better summing up of the hospital situation could be made. The deficit for 1904, after spending for maintenance $45,603.46 in legacies received during the year, was $72,936.74. Out of an original endowment fund of $651,600, $370,000 has now been spent to carry annual deficits in maintenance, so that only $281,600 remains to meet annual deficits in the future. The remedy for this condition of things in the various hospitals he thinks lies in the raising of a large endowment fund, to be used in supplementing their incomes.

TWENTIETH ANNIVERSARY OF THE ANNALS OF SURGERY.

THE current issue of the *Annals of Surgery* marks the first twenty years of its publication under the same editorial supervision. In spite of the very rapid development of surgery during this period, it is noteworthy that few journals devoted to this branch of medicine have appeared in the English language, although various subdepartments of surgery have had their own organs. During the comparatively short term of its existence the *Annals of Surgery* has consistently represented the best in surgical practice, and has reflected in a wholly adequate way the progress which this great department of medicine has made. The present issue, admirably

illustrated, may be regarded as a jubilee number, filling, as it does, two hundred and sixty-nine pages of text from the pens of many distinguished surgeons. We congratulate our contemporary on the completion of its first twenty years, and young as it may appear in comparison with many other medical publications, we have no doubt it has a future before it of which these early years are merely a forecast.

MEDICAL NOTES.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS. — Dr. R. H. Fitz has been elected president of the next Congress of American Physicians and Surgeons which will be held in Washington in May, 1906.

THE MEMORIAL TO MR. WILLIAM CADGE. — The stained glass window erected in Norwich Cathedral in memory of Mr. William Cadge, F.R.C.S., for which some subscriptions were sent from this country, was unveiled by Mr. John Tweedy, President of the Royal College of Surgeons, on the 6th of December.

DOCTORS IN THE FRENCH CORPS LEGISLATIF. —The Paris correspondent of the *New York Medical Journal* says that: "Doctors compose one third of the Chamber of Deputies and half of the Senate, and an indescribably pleasant aroma clings to the whole civil fabric by virtue of the great number of physicians in office. M. Combes himself, as the whole world knows, started life as a priest, and is now a doctor of medicine. In the Postal Department there are twenty-seven male doctors, two surgeons, and five medical women. Galen can now say, 'État c'est moi.'"

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon Dec. 28, 1904, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 54, scarlatina 20, typhoid fever 8, measles 4, smallpox 0.

A CENTENARIAN. — Christina Ridder died December 21, in Reading, Mass., at the reputed age of one hundred years. She was born at The Hague, Oct. 19, 1804, and many of her immediate relatives lived to a ripe age.

MEETING OF THE RUTLAND RAILROAD SURGEONS. — A meeting of the surgeons of the Rutland Railroad Company was held at Burlington, Vt., December 15. The object of the meeting was to organize the staff permanently and to discuss matters relating to the railroad.

MEDICAL DICTIONARIES FOR TOWN CLERKS. — It has been suggested by Dr. C. A. Lindsley, Secretary of the State Board of Health of Connecticut, that much assistance might be rendered town clerks who are obliged to record certificates of the causes of death could they be provided, as a part of their office fittings, with adequate medical dictionaries. Dr. Lindsley is, no doubt, correct when he says that so long as town clerks unfamiliar with the nomenclature of disease are the legally appointed registrars of vital statistics the aid of a good medical dictionary is a necessity to them if they are to do good work.

CLOSING OF HOSPITAL FOR TUBERCULOSIS. — The hospital for tuberculosis, together with two wards of the main portion of the Hartford Hospital, has been closed since Nov. 21, 1903. Applications, except in rare instances, from tuberculous patients have of necessity been declined. The authorities feel that the hospital is not satisfying the public need, and suggest that the tuberculosis hospital be opened for incipient cases only, and two wards of the main hospital for advanced cases. This, however, cannot be done on account of expense. This is regrettable, but not an unusual experience of modern hospital affairs.

Miscellany.

MEDICAL REPORT ON THE SOUTH AFRICAN WAR.

THE report on the medical arrangements in the South African War has recently been issued by Surgeon-General Sir W. D. Wilson. It does not contain the vital statistics, the tabulation and analysis of these being not yet complete, but confines itself to a general account of the arrangements.

In commenting upon this report the *British Medical Journal* says:

"There is no attempt at a vindication of the medical service, no advocacy or apology, but only a calm recital of incontrovertible facts which clearly show that the acrimonious accusations so freely hurled at the medical service during the war were often founded on mere calumnious gossip, or, when they had any basis in fact, were grossly exaggerated; such shortcomings as did occur nearly all arose from circumstances entirely beyond the control of the medical department.

"The report confirms the impression that we began the war in a furtive fashion, neither realizing the vast preparations the Boers had made for hostilities, nor their intention of forcing them on us; thus our preparations were needlessly hampered by the unnecessary fear of offending the susceptibilities of resolute men at

Pretoria! We are here told that, when medical provision for war had perforce to be begun, it was done 'quietly,' because 'any overt preparation at the time was deprecated.' But even had more aggressive energy been displayed in the early stages, it is doubtful whether the results would be much better, for we are told that the 'medical service, like other branches, was hampered by an insufficiency of *personnel*, both officers and men, and the additions to it during the war were untrained in their special duties;' further, 'provision of hospital accommodation, as at first estimated, fell far short of the actual requirements.' Next, 'the changes in the plan of campaign, at an early stage, upset the field medical arrangements for a time;' and there was not 'sufficient elasticity' in the undermanned medical establishments to meet such a contingency; still further, 'the greatest obstacle to the work of the medical service was the transport difficulty.'

"It is stated that the 'deficiency of good non-commissioned officers (of the medical corps) was very greatly felt through the campaign.' It is small wonder, then, that slackness or confusion was at times seen in the work of scratch teams of hospital servants. It is really wonderful that under such adverse circumstances the medical service in the war worked so well, as this volume incontestably proves it did.

"We may quote as one illustration of this the operations extending from Magersfontein to Bloemfontein. The forced march for the relief of Kimberley necessitated the reduction of the ambulances to 'one fifth' of their proper strength; the subsequent pursuit of Cronje still further reduced hospital transport and supplies to the smallest dimensions, so that when the 1,200 casualties at Paardeberg had to be met, depletion was so complete that 'blankets and great coats of the non-commissioned officers and men of the medical corps were given up' to cover the wounded at the very time when these kindly men were heroically attending to their duties at the dressing stations under fire.

"So completely were the hospitals stripped and disorganized in the race for Bloemfontein that on arrival there, with the railway blocked, the needs of the medical service had to be satisfied at first with what was obtainable on the spot, and that was scanty. Bloemfontein already 'had a bad reputation on account of the prevalence of enteric fever,' and the severe outbreak among our troops is explained in this sentence: 'The local conditions were then an endemic area, provided with an impure water supply, and in a bad sanitary condition generally. To this was added the human factor — an army exhausted by excessive exertion, on a reduced diet, marching through a district where the only available water supply was scanty, and probably in many instances polluted.' Also, before the general hospitals arrived the sick had to be treated in the field hospitals, having neither beds nor clothing suited for the continuous treatment of serious cases. If the sensational critics, who so loudly condemned the medical service at Bloemfontein, were aware of these facts, it says little for their sense of justice or their candor.

"Expressions as free, frank and unreserved as those here given might be quoted as to incidents all over the theatre of war, did space permit; we could also refer to the criticisms on the civil hospitals, on invaliding, and on other matters of much interest."

This report should be laid to heart by all who are responsible for the efficiency of armies and navies when put to the touch of the sudden emergency of actual warfare. We believe that the heads of our own medical bureaus at Washington are fully alive to the vital importance to the army and navy of such efficiency, but it too often happens that other departments of government are only moved to action in such matters by the actual arrival of disaster. When the Japanese come to report on their medical administration during the present war with Russia, it seems probable that they will be able to do so with more self-satisfaction.

Correspondence.

LETTER FROM MUNICH.

"HEARERS;" VON WINCKEL; GYNECOLOGICAL FACILITIES; THE RED CROSS; COEDUCATION.

MUNICH, GERMANY, Nov. 5, 1904.

MR. EDITOR: The regular work of the university began about the middle of October. So-called "hearers," those people, men and women, who by special arrangement with the various professors are admitted to the lectures without matriculating in the university, are also included in all departments of university work. Any accredited physician will find cordial welcome at the clinics, both those belonging especially to the university course and the more private work of the surgeons here. Volunteers are connected with all the hospitals. This staff includes those, both men and women, who enter the hospital, live in and attend to whatever duties may be assigned them in exchange for opportunities to see and to assist.

Winckel at the Frauenklinik is especially interested in this, as he also was when in Dresden. Von Winckel operates at the Frauenklinik and is most cordial to strangers. He works rapidly, and sits at abdominal operations, as well as at minor work. At least, he did when I saw him. Catgut, prepared by Cumol method, is in general use inside the abdomen, and for buried sutures in minor work; silkworm gut for external stitches. As in England, both chloroform and ether are used as anesthetics, ether a great deal in private work. A mixture called camphorol is the only stimulant I have seen used subcutaneously.

℞	Camphoræ tritæ,	4—0
	Olei Amygdalorum Dulcium,	20.00

Three to five grammes being used as a dose.

The Fürbringen (Berlin) system of hand disinfection is used, namely, soap and water five to ten minutes with nail brush, alcohol, followed by corrosive (1 to 1,000) or cyanate of mercury (1 to 1,000). Gloves are not in general use, although I have seen both cotton and rubber gloves worn. Instruments and dressings, as with us, boiling for one and steam under pressure for the other.

Besides the Frauenklinik, the chirurgische klinik and that of mere medicine at the Allegemein Krankenhaus, and the Poliklinik furnish clinical material for the university. The Allegemein Krankenhaus — General City Hospital — furnishes, and very completely, mechanical means other than surgical for the use of the gynecologist. Baths of all kinds, including mud, both Moor and fango, the latter a finely divided mud taken from volcanic springs, now used all over Germany, are provided. The method of Brandt is also taught and used in private clinics. The Rotheskreuz is established here as elsewhere to train nurses for the government service. It has one hundred and fifty beds, soon to be increased to three hundred. It provides opportunity for private patients from all the provinces of Bavaria.

Since and according to the degree of the Bundesrath, about three years ago, women are now admitted to the examinations in medicine and pharmacy. The University of Munich, like the other German universities, is, therefore, coeducational. Although there is no central bureau of information for foreigners as in Paris, whoever comes to Munich will find himself most cordially directed by the individual doctor in whatever line he chooses to work.

Very truly yours,
SARAH ELLEN PALMER, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 17, 1904.

CITIES.	Population Estimated, 1904.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid Fever.	Cerebro-spinal Meningitis.
New York	3,908,644	1,380	386	21.45	22.03	2.90	1.16	2.39
Chicago	2,021,086	—	—	—	—	—	—	—
Philadelphia	1,407,968	519	142	22.54	21.00	2.89	1.73	—
St. Louis	633,606	—	—	—	—	—	—	—
Baltimore	542,229	206	56	20.38	13.10	—	2.91	48
Cleveland	444,251	—	—	—	—	—	—	—
Buffalo	400,645	—	—	—	—	—	—	—
Pittsburg	362,403	—	—	—	—	—	—	—
Cincinnati	338,277	—	—	—	—	—	—	—
Milwaukee	325,990	—	—	—	—	—	—	—
Washington	300,776	—	—	—	—	—	—	—
Providence	196,744	74	21	17.56	13.51	—	1.35	—
Boston	617,950	209	53	16.74	18.66	2.39	1.43	.48
Worcester	136,925	38	7	2.63	15.78	—	—	—
Fall River	119,549	24	7	29.16	16.67	4.16	—	—
Lowell	104,402	39	13	15.38	25.64	5.13	—	—
Cambridge	100,998	20	5	10.00	30.00	—	—	—
Lynn	73,875	29	7	6.90	17.24	3.45	3.45	—
Lawrence	72,348	23	7	17.39	39.13	—	4.35	—
Springfield	72,020	20	5	20.00	10.00	10.00	—	—
Somerville	70,413	16	3	12.50	12.50	6.25	—	6.25
New Bedford	68,863	16	5	25.00	12.50	—	6.25	—
Holyoke	50,538	12	6	16.00	16.67	—	—	8.33
Brockton	46,601	13	4	15.40	23.10	—	—	7.70
Newton	39,310	8	3	—	—	—	—	—
Haverhill	39,061	16	2	12.50	6.25	—	—	6.25
Malden	37,205	21	6	—	14.28	—	—	—
Salem	37,188	10	3	—	—	—	—	—
Chelsea	36,499	20	3	35.00	15.00	—	10.00	—
Fitchburg	36,335	8	2	12.50	37.50	—	12.50	—
Taunton	34,577	8	2	—	—	—	—	—
Everett	30,209	2	1	—	—	—	—	—
North Adams	29,201	5	0	20.00	20.00	20.00	—	—
Quincy	26,798	4	2	50.00	—	—	—	—
Gloucester	26,121	6	1	—	—	—	—	—
Waltham	25,797	7	1	—	28.60	—	—	—
Brookline	23,576	8	—	—	12.50	—	—	—
Pittsfield	22,870	6	1	—	16.67	—	—	—
Medford	21,356	2	1	—	—	—	—	—
Chicopee	21,692	2	1	—	50.00	—	—	—
Northampton	20,314	11	0	27.27	—	—	—	—
Beverly	15,807	6	—	—	50.00	—	—	—
Leominster	15,711	—	—	—	—	—	—	—
Clinton	15,694	2	0	—	—	—	—	—
Adams	14,745	4	1	—	50.00	—	—	—
Attleboro	14,561	—	—	—	—	—	—	—
Hyde Park	14,500	3	1	—	—	—	—	—
Newburyport	14,478	4	1	25.00	—	—	—	—
Woburn	14,315	6	1	16.67	16.67	—	—	—
Melrose	13,819	3	1	66.67	—	—	—	—
Westfield	13,809	6	2	66.67	—	16.67	33.33	—
Milford	13,771	—	—	—	—	—	—	—
Marlboro	13,609	2	1	50.00	—	—	—	50.00
Revere	13,609	1	—	—	—	—	—	—
Framingham	12,974	—	—	—	—	—	—	—
Peabody	12,406	—	—	—	—	—	—	—
Gardner	12,324	4	2	—	50.00	—	—	—
Southbridge	11,716	2	—	50.00	—	50.00	—	—
Watertown	11,575	6	1	33.33	33.33	—	—	—
Weymouth	11,350	3	0	—	33.33	—	—	—
Plymouth	11,139	—	—	—	—	—	—	—

Deaths reported, 2,834; under five years of age, 767; principal infectious diseases (small pox, measles, scarlet fever, cerebro-spinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 568; acute lung diseases 567, consumption 287, scarlet fever 24, whooping cough 8, cerebrospinal meningitis 40, small pox 0, erysipelas 8, puerperal fever 6, measles 12, typhoid fever 43, diarrheal diseases 68, diphtheria and croup 70.

From whooping cough, New York 7, Boston 1. From scarlet fever, New York 13, Philadelphia 2, Baltimore 6, Boston 1, Chelsea 2. From cerebrospinal meningitis, New York 33, Baltimore 1, Boston, Somerville, Holyoke, Brockton, Haverhill and Marlborough 1 each. From erysipelas, New York 6, Providence 1, Lawrence 1.

In the seventy-six great towns of England and Wales, with an estimated population of 15,271,287, for the week ending Dec. 3, the death-rate was 21.6. Deaths reported 6,326; acute diseases of the respiratory organs (London) 357, whooping cough 69, diphtheria 89, measles 151, small pox 3, scarlet fever 53.

The death-rate ranged from 5.8 in Hornsey to 32.4 in Tynemouth; London 21.7, West Ham 18.6, Brighton 20.2, Southampton 15.8, Plymouth 21.0, Bristol 25.7, Birmingham 23.9, Leicester 24.0, Nottingham 25.8, Birkenhead 29.1, Liverpool 26.5, Wigan 30.7, Bolton 19.0, Manchester 30.3, Salford 23.5, Halifax 18.4, Bradford 19.0, Leeds 17.0, Hull 19.3, Sheffield 17.5, Newcastle-on-Tyne 20.6, Cardiff 16.9, Rhondda 18.8, West Bromwich 23.3, South Shields 23.8.

METEOROLOGICAL RECORD.

For the week ending December 17, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

DATE	Barometer.	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.. 11	30.12	14	20	9	59	43	51	N W	W	11	8	C.	C.	T.
M. 12	30.02	22	30	14	56	88	72	S W	N E	4	18	O.	O.	T.
T.. 13	29.92	24	29	18	69	54	62	N	N W	15	16	O.	C.	.23
W. 14	30.26	18	26	11	65	55	60	N W	N W	9	12	C.	C.	0
T.. 15	30.32	20	30	10	74	82	78	N W	N W	7	6	C.	O.	0
F.. 16	30.01	28	34	22	88	73	80	N	N W	18	7	O.	C.	T.
S.. 17	30.10	24	30	18	71	83	77	W	N E	5	5	O.	O.	0
☞	30.11		28	15			69							.31

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; —, below zero. † Indicates trace of rainfall. ☞ Means for week.

CHANGES IN THE MEDICAL CORPS U. S. NAVY THE WEEK ENDING DECEMBER 24, 1904.

NORTON, O. D., surgeon. Detached from the "Illinois" and granted sick leave for three weeks.

GEIGER, A. J., assistant surgeon. Ordered to the "Prairie."

PEASE, T. N., assistant surgeon. Detached from the "Hartford" and ordered to the "Columbia."

TOLFREE, H. M., assistant surgeon. Ordered to the "Hancock."

SOCIETY NOTICE.

BOSTON MEDICAL LIBRARY MEETINGS.—The Boston Medical Library Meetings in conjunction with the Suffolk District Branch of the Massachusetts Medical Society. Program of Meeting of Section for Surgery on Jan. 4, 1905: Treatment of Appendicitis: The Choice of a Method of Incision. Dr. F. B. Harrington. The results of some experiments on Peritoneal Drainage, Dr. F. T. Murphy. Immediate Operation *versus* Delay, Dr. G. W. W. Brewster. Can we wait for Localization in Cases where the General Peritoneal Cavity is involved? Dr. C. A. Porter. Discussion opened by Dr. M. H. Richardson, followed by Dr. R. H. Fitz and Dr. William N. Swift of New Bedford, Mass.

RECENT DEATHS.

CHARLES EBENEZER BIRTWELL, M.D., M.M.S.S., of Lawrence, died in Providence, R. I., Dec. 8, 1904, aged forty-three years.

JOSHUA BAYLEY GOULD, M.D., M.M.S.S., of West Somerville, died in Philadelphia December, 1904, aged eighty-five.

DR. WILLIAM GILFILLAN of Brooklyn, N. Y., died from bronchitis on Dec. 18. He was seventy-one years old, and a native of Derry, Ireland. He received the degree of M.D. from the University of Edinburgh in 1855 and came to this country in 1857. In 1859 he settled in St. Louis, where he remained for three years. He then removed to Brooklyn, where he continued to practice up to the time of his death. Dr. Gilfillan was the son of Alexander Gilfillan, a surgeon in the Royal Navy, who accompanied the members of the first Arctic expedition of Sir John Franklin.

DR. HENRY C. MCLEAN, a well-known physician of Brooklyn, N. Y., died on Dec. 23. He was born in New Hamburgh on the Hudson and was a graduate of Manhattan College, New York, and of the medical department of the University of the City of New York in 1873. He was for a number of years a member of the Board of Education of the old City of Brooklyn, and at the time of his death was attending physician to St. Mary's, the Maternity and Infant, and the Kings County Hospitals.

OPERATIONS: BOSTON CITY HOSPITAL.

The following operations will be done and cases shown in the amphitheater of the Boston City Hospital on Dec. 30, from 10 A. M. until 12.30 P. M.: Appendectomy; Radical Cure of Inguinal Hernia; Varicocele; Hemorrhoids.